



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

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EPA Region VIII
Regional Hearing Clerk

CERTIFIED MAIL NO. P 818 769 068
RETURN RECEIPT REQUEST

Mr. M. D. Ensign
Executive Vice-President
Sinclair Oil Corporation
550 E. South Temple
Salt Lake City, Utah 84130-0825

Re: LARCO 3008(h) Order
EPA ID No. WYD048743009

Dear Mr. Ensign:

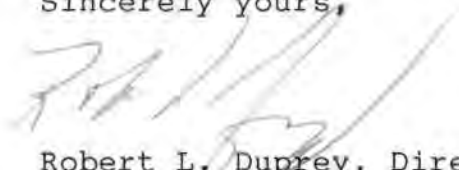
Enclosed please find a corrective action order issued pursuant to Section 3008(h) of the Resource Conservation and Recovery Act (RCRA) to Sinclair Oil Corporation's Little America Refining Company (LARCO) of Evansville, Wyoming. The Section 3008(h) order ("order") is being issued unilaterally by EPA as negotiations on the September 27, 1988, Section 3008(h) consent order failed to produce agreement between EPA and LARCO.

Please note that the order requires an evaluation of on-site and off-site releases from LARCO, and specifically includes releases to the Brookhurst residential subdivision, as well as potential releases near the evaporation ponds located north of the North Platte River. Interim measures contained in the order include installation and sampling of monitoring wells and recovery wells along the east boundary of LARCO, and in the Brookhurst residential subdivision. The interim measures outlined in the order also include continued operation of the existing on-site hydrocarbon recovery system.

In accordance with section 3008(b) of RCRA, this order becomes final and effective unless within 30 days of receipt of this letter LARCO requests a hearing. The procedures to request a hearing, as well as a discussion of hearing procedures, are found in the April 13, 1988, Federal Register. Also, the administrative record which supports the issuance of this order is available for review during normal business hours in the EPA Region 8 offices.

If you have any questions related to legal matters, please contact Alicia Hoegh of the Office of Regional Counsel at (303) 294-7570. If you have any questions pertaining to technical matters, please contact Terry Anderson at (303) 293-1790.

Sincerely yours,

A handwritten signature in dark ink, appearing to read 'Rob L. Duprey', is written over a light blue horizontal line.

Robert L. Duprey, Director
Hazardous Waste Management Division

Enclosure

cc: Dennis Stickley, SOC
Jim Limes, LARCO
Randy Wood, WDEQ
Dave Finley, WDEQ



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET—SUITE 500
DENVER, COLORADO 80202-2405

RCRA UNILATERAL 3008(h) ADMINISTRATIVE ORDER
ISSUED TO
SINCLAIR OIL CORPORATION
LITTLE AMERICA REFINING COMPANY
EVANSVILLE, WYOMING

EPA ID NO. WYD048743009

December 1988

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION VIII

IN THE MATTER OF:)	ADMINISTRATIVE ORDER
)	
SINCLAIR OIL CORPORATION,)	U.S. EPA DOCKET NO.
a Wyoming corporation,)	RCRA 3008(h)-VIII-88 ⁸⁹⁻⁰⁵
LITTLE AMERICA REFINING COMPANY,)	
Evansville, Wyoming,)	
)	Proceeding under Section EPA
ID No. WYD048743009)	3008(h) of the Resource
)	Conservation and Recovery
)	Act, as amended, 42 U.S.C.
)	§6928(h).
)	
)	
Respondent.)	

I. JURISDICTION

This Administrative Order ("Order") is issued pursuant to the authority vested in the Administrator of the United States Environmental Protection Agency ("EPA") by Section 3008(h) of the Solid Waste Disposal Act, commonly referred to as the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. §6928(h). The authority vested in the Administrator has been delegated to the Regional Administrators by EPA Delegation Nos. 8-31 and 8-32 dated April 16, 1985. This authority has been further delegated by the Regional Administrator for Region VIII to the Director of Hazardous Waste Management Division of EPA, Region VIII.

This Order is issued to Sinclair Oil Corporation, ("Sinclair"), as owner of the Little America Refining Company, Inc. (hereinafter also referred to as "LARCO", or "Facility") located in Evansville, Wyoming.

II. PARTIES BOUND

1. This Order shall apply to and be binding upon Sinclair Oil Corporation and its officers, directors, employees, agents, successors and assigns, and upon all persons, independent contractors, contractors, and consultants acting under or on behalf of Sinclair Oil Corporation.

2. No change in ownership or corporate or partnership status relating to the Facility will in any way alter Sinclair Oil Corporation's responsibility under this Order.

3. Sinclair Oil Corporation shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants retained to conduct or monitor any portion of the work performed pursuant to this Order within one (1) week of the effective date of this Order or date of such retention, and shall condition all such contracts on compliance with the terms of this Order.

4. Sinclair Oil Corporation shall give written notice of this Order to any successor in interest prior to transfer of ownership or operation of the Facility and shall notify EPA within thirty (30) calendar days prior to such transfer.

III. STATEMENT OF PURPOSE

The issuance of the Order requires Sinclair Oil Corporation (1) to perform Interim Measures (IM) at the LARCO Facility to mitigate potential threat(s) to human health and/or the environment from hazardous wastes and/or hazardous constituents at or from the Facility, (2) to perform a RCRA Facility Investigation (RFI) to determine fully the nature and extent of any release of hazardous waste and/or hazardous constituents at and/or from the Facility; (3) to perform a Corrective Measures Study (CMS) to identify and evaluate alternatives for the corrective action alternatives necessary to prevent or mitigate any migration or releases of hazardous wastes and/or hazardous constituents at or from the Facility; and (4) to implement the corrective measure or measures (CMI) selected by EPA at the Facility.

IV. FINDINGS OF FACT

1. Sinclair Oil Corporation is a corporation organized under the laws of the State of Wyoming, is authorized to do business in the State of Wyoming, and is a person as defined in Section 1004(15) of RCRA, 42 U.S.C. §6903(15). Sinclair Oil Corporation is the owner of the Little America Refining Company (LARCO).

2. Little America Refining Company, which is a registered tradename for Sinclair Oil Corporation, is the operator of a hazardous waste management facility located in Evansville, Wyoming, on Glenrock Highway (Figure 1). Sinclair is or has been engaged in the generation, treatment, storage, and disposal of hazardous waste at the LARCO Facility, and is subject to interim status requirements (40 CFR Part 265). Operations were begun at this site under previous ownership in the 1920s.

3. LARCO is bounded on the east by an approximate 40 foot strip of land owned by a company known as Sivalls. This strip of land is bounded by a residential subdivision known as Brookhurst. The Brookhurst subdivision was originally platted in the early 1970s. The area contains a mixture of residential land use and

industrial land use. The industrial land use area around Brookhurst contains or has contained at least 20 business operations, including LARCO as well as other petroleum refining, transport, and storage operations; petroleum services operations; natural gas proceeding operations; chemical storage and transportation operations; trucking and truck maintenance and repair operations; lumber yards; various types of construction contractors; and agricultural operations. These operations may have contributed hazardous substances, pollutants, or contaminants to the environment and some of which are under investigation by EPA for potential releases. LARCO is bounded on the west by Texaco Refinery and petroleum pipeline corridors and on the south by the Burlington Northern Railroad (Expanded Site Investigation Report, August 1987, and Community Relations Plan, Mystery Bridge Road/U.S. Highway 20 Superfund Site, Natrona County, Wyoming, November 16, 1988).

4. Sinclair owned and operated its LARCO Facility as a hazardous waste management facility on and after November 19, 1980, the applicable date which renders facilities subject to interim status requirements or the requirement to have a permit under Sections 3004 and 3005 of RCRA, 42 U.S.C. §§6924, 6925.

5a. Pursuant to Section 3010 of RCRA, 42 U.S.C. §6930, Sinclair notified EPA of its hazardous waste activity. In its notification dated on or about August 13, 1980, Sinclair identified itself as a generator of hazardous waste and an owner/operator of a treatment, storage, and disposal facility for hazardous waste at LARCO.

5b. Sinclair submitted a "Part A" application to EPA on or about November 19, 1980, in which Sinclair identified its LARCO facility as handling the following hazardous wastes, which are common at petroleum refineries, at the following hazardous waste management units:

<u>Hazardous Waste Number</u>	<u>Waste Description</u>	<u>Waste Management Unit</u>
K049	Slop Oil Emulsion Solids	Land Application
K050	Heat Exchanger Bundle Cleaning Sludge	Land Application
K051	API Separator Sludge	Land Application
K052	Leaded Tank Bottoms Weathering Pile	Land Application
D000	Unspecified (Toxic)	Surface Impoundments (API Separator Ponds)

5c. On or about September 1, 1981, Sinclair submitted a modified "Part A" permit application to EPA in which Sinclair withdrew the hazardous waste land application unit as an active unit at its LARCO Facility. Sinclair reported that no hazardous wastes were applied to the land application unit on or after November 19, 1980. In addition, hazardous waste code numbers K051, K050, and K049 were deleted. On July 11, 1984, EPA sent Sinclair a letter which stated that K051 wastes were present in the API separator ponds. The facility handles listed hazardous waste from specific sources under 40 C.F.R. §261.32.

5d. The results from analysis of the sludge contained in LARCO's API separator ponds submitted to EPA by Sinclair in its June 1984 closure plan showed chromium, in excess of 10 milligrams per liter, as determined by the Extraction Procedure Toxicity Test (EP Toxicity). Wastes which contain EP Toxicity values of chromium greater than or equal to 5 milligrams per liter are characteristic hazardous wastes as defined in 40 C.F.R. §261.24. Sinclair also reported, in the proposed June 4, 1984 Closure Plan for the LARCO Facility, that lead was present in the sludge above the EP Toxicity level. In the Part B application submitted November 5, 1985, and in a letter dated September 2, 1988, Sinclair stated that the waste was classified as K051 wastes. In a letter dated October 25, 1988, LARCO notified EPA that an analysis of the sludge was performed on June 22, 1988, which indicated that the sludge was below EP Toxicity levels for lead and chromium and other inorganic parameters.

6a. In the November 19, 1980 Part A permit application submitted to EPA, Sinclair indicated that at LARCO the storage of D000 hazardous waste occurred in two surface impoundments referred to as the API separator ponds. These ponds are unlined and are each approximately 50 feet wide by 250 feet long and average 7 feet in depth. These ponds have been in operation since about 1954 and receive approximately 200,000 gallons per day of waste water from the API separator. (Preliminary Assessment Report, Preliminary Review, Little America Refining Company (LARCO); U.S. EPA, February 1987). Figure 1 shows the location of these ponds. Figure 1 is attached hereto and is incorporated herein by reference.

6b. In a letter dated July 8, 1985, Sinclair reported that at its LARCO facility it operates three unlined ponds which are referred to as the evaporation ponds. The evaporation ponds are located approximately two miles northwest of the refinery complex north of the North Platte River which is located along the north side of the main LARCO facility (see Figure 1 attached). Waste water from the API separator pond and the water treatment ponds is pumped through a six inch pipeline across the North Platte

River to the evaporation ponds. The average flow to these ponds is approximately 200,000 gallons per day. The evaporation ponds occupy approximately 100 acres of surface area and have been in operation since 1954. During an EPA RCRA inspection conducted during May, 1987, the ponds were observed to be constructed in an area with active sand dunes.

6c. Sinclair identified its solid waste management units ("SWMUs") in a letter to EPA, dated July 8, 1985. SWMUs include areas where a facility has managed or is managing solid wastes on-site. (Note: The definitions of "Solid Waste" and "Solid Waste Management Units" are found in Section 1004 of RCRA, and in 40 CFR § 261.2, and in the July 15, 1988, Federal Register). An EPA investigation of LARCO conducted in 1987 identified other SWMUs. The following list includes SWMUs identified by EPA to date:

- o API separator ponds
- o water treatment ponds
- o evaporation ponds (north of river)
- o interceptor drain system
- o river water treatment solids area
- o old concrete areas
- o scrap steel area
- o drum storage area
- o old land farm
- o abandoned asphalt pit
- o abandoned refuse pit
- o abandoned dump site
- o interceptor trench
- o API separator
- o sewer system and pipelines
- o storage tank cleaning areas
- o heat exchanger cleaning areas
- o stained soils and standing liquid areas
- o waste transfer routes (including pipelines)

The approximate location of these units is shown on Figure 2, attached hereto and incorporated herein by reference. Information on the operation of these units may be found in the EPA document entitled: Preliminary Assessment Report, RCRA Facility Assessment, Preliminary Review, Little America Refining Company (LARCO), Evansville, Wyoming; February 1987.

6d. The site hydrogeology consists of the upper Cretaceous Mesaverde Formation, alluvial deposits associated with the North Platte River and fill material. Sandstone bodies within the Mesaverde Formation are locally utilized as aquifers. In the general vicinity of the LARCO site, the unnamed middle shale member of the Mesaverde Formation probably functions as an underlying aquitard to ground water flowing in the alluvial aquifer. The shallow alluvial aquifer under the facility is

unconfined, composed of a predominantly coarse-grained, pebbly, unconsolidated sand containing gravel beds at its base and has minimal clay stratification. It is highly permeable and conducts water readily. Local ground water flow in the alluvium is generally down-valley toward the North Platte River to the east-northeast on the south side of the North Platte River, and to the east-southeast on the north side of the North Platte River. (Preliminary Assessment Report, RCRA Facility Assessment, Preliminary Review, Little America Refining Company (LARCO), Evansville, Wyoming; February 1987).

7a. In a report entitled: Casper Texaco Refinery North Property Ground- Water Pollution Abatement Program (1984 Annual Report), Texaco, Inc., documented a rupture in LARCO's waste water pipeline that discharges into the evaporation ponds, that occurred on November 16, 1984, on Texaco's property. Samples obtained and analyzed by Texaco from the pipeline effluent showed the following levels of constituents:

<u>Hazardous Constituent</u>	<u>Concentration (Micrograms per Liter)</u>
Benzene	1,300
Ethylbenzene	120
Toluene	1,500
Naphthalene	1,200
2,4-Dimethylphenol	1,400
Phenol	5,200
Acetone	5,800
2-Butane	430
o,p-Xylene	470
m-Xylene	470
2-Methylphenol	10,000
4-Methylphenol	2,000
2-Methylnaphthalene	3,600

The evaporation ponds are unlined and are located in a sandy subsoil on the north side of the North Platte River.

7b. Beneath the API separator ponds, ground water is mounded and flows radially away from the ponds. It is estimated that wastewater in the ponds is discharging into the ground water at a rate of approximately 13 gallons per minute. (Little America Refining Special Studies - Final Report: PRC Engineering, April 11, 1986)(Incorporated by reference). The flow in the North Platte is highly variable. Stream flow in the North Platte River at the site exceeds 135 cubic feet/second (CFS) 50 percent of the time, and exceeds 28 CFS 99.9 percent of the time.

7c. Seeps of oily material along the southern bank of the North Platte River on LARCO's property prompted the installation of a hydrocarbon intercept trench and recovery system that operated from approximately July 1982 through October 1984. The location of this trench is shown in Figure 2. This hydrocarbon recovery system was upgraded in March 1985, and is currently in operation. An April 1986 ground water investigation of the site (CME) conducted by EPA showed the presence of hydrocarbons in wells surrounding the API separator ponds near the recovery system. In a report entitled "Ground-Water Monitoring At Little America Refining Company's pH Wells", dated June 1987 (prepared October 1987), prepared for LARCO by Hydro-Engineering, the presence of a floating hydrocarbon layer was also detected near the hydrocarbon intercept system. In a letter to EPA dated September 14, 1988, (section 3007 response) LARCO identified monitoring wells which contained a free-floating hydrocarbon layer. Ground water samples collected from monitoring wells located between the hydrocarbon recovery system and the North Platte River and analyzed by LARCO, showed phenol at levels up to 11.8 milligrams per liter. (Preliminary Assessment Report, RCRA Facility Assessment, Preliminary Review, Little America Refining Company (LARCO), February 17, 1987.)

7d. During the week of April 21, 1986, EPA obtained samples from ground water wells at the Facility. These wells are constructed in the shallow alluvial aquifer, and are approximately thirty feet in depth. Analysis of the samples showed the following hazardous constituents present in ground water at the LARCO property:

<u>Hazardous Constituents</u>	<u>Well Designation</u>				
	<u>MW-07</u>	<u>MW-13</u>	<u>PH-5</u>	<u>PH-5</u>	<u>PH-6</u>
Benzene	2.3	15.8	4.0	47.6	157.0
Toluene	5.4	4.1	2.1	41.7	23.2
Total xylenes	62.6	36.0	37.1	516.0	232.0
Ethylbenzene	ND	ND	16.6	66.6	13.5
1,1-Dichloroethane	ND	ND	ND	ND	3.6
Phenanthrene/anthracene	175	315	545	1440	2685
Pyrene	ND	ND	215	465	ND
Naphthalene	ND	ND	ND	450	ND
2-Methylnaphthalene	120	ND	ND	1845	300

All concentrations expressed in micrograms per liter (ug/l); (ND = Not Detected)

7e. On or about September 26, 1986, LARCO had ground water samples collected from eight "perimeter" ground water monitoring wells located on its property (see Figure 3 attached hereto and

incorporated herein by reference). Analysis of these samples performed by Sinclair at LARCO revealed the ground water from MW-2 to be contaminated with benzene, toluene, and xylene at concentrations of 4.2, 9.4, and 37.9 micrograms per liter, respectively. Sinclair resampled this well on October 7, 1988, and the second analysis showed concentrations of the same organic constituents at levels of 138.4, 58.8, and 757.0 micrograms per liter, respectively. These wells are completed in the shallow alluvial aquifer.

7f. EPA's Region VIII Emergency Response Branch installed ground water monitoring wells within the Brookhurst subdivision in the shallow alluvial aquifer depth (Figure 3). Analytical results from samples obtained from these wells during March 1987 by EPA showed the following hazardous constituents present in the ground water:

<u>Hazardous Constituents</u>	<u>EPA Well Number</u>		
	<u>1-4</u>	<u>2-4</u>	<u>2-5</u>
Benzene	5	ND	39
Toluene	ND	5	12
Naphthalene	130	16	160
2-Methylnaphthalene	240	29	110
Phenanthrene	22	ND	ND
Pentachlorophenol	ND	220	75

All concentrations expressed in micrograms per liter (ug/l); ND = not detected.

On October 10, 1987, LARCO sampled and analyzed ground water from EPA wells 1-4, 2-4, 2-5, and 2-6 in Brookhurst. Only well 2-5 showed the presence of contaminants from LARCO's October 10, 1987, sampling event.

7g. During April 10-13, 1988, EPA and its contractors sampled soil gas vapor, and interior air quality in one residence, within the Brookhurst subdivision in the vicinity of EPA wells 1-4, 2-4, and 2-5. Approximately 100 soil vapor sites were tested at a depth of 4 feet for organic compounds using an HNU portable soil gas analyzer. A map of the soil gas vapor sample sites with the total organic concentrations found at each soil vapor site is attached as Figure 4 and is incorporated herein by reference. The interior space monitoring results also indicated the presence of organic vapors. (Preliminary Report of the Brookhurst Subdivision Site; Evansville, Wyoming, April 18, 1988).

7h. On April 19, 1988, EPA issued an Order pursuant to Section 7003(a) of the Solid Waste Disposal Act, as amended by 42 U.S.C. Section 6973(a), requiring Sinclair to minimize or remove the imminent and substantial endangerment to human health and the

environment caused by a ground water plume of solid waste containing hazardous constituents flowing from LARCO into Brookhurst. The major activities required by the Section 7003 Order included interior air monitoring, soil vapor monitoring, and monitoring and recovery well installation and sampling. EPA has determined that LARCO has completed most of the requirements of the Section 7003 order.

8. Drinking water for the Brookhurst residential subdivision has been from private domestic water wells. Most of these wells are completed in the shallow (less than 50 feet deep) alluvial aquifer (Preliminary Assessment Report, RCRA Facility Assessment, Preliminary Review, Little America Refining Company (LARCO), Evansville, Wyoming; February 1987). An alternate source of drinking water from a nearby water treatment plant is currently available to all residents of Brookhurst. The LARCO facility is located along the North Platte River which serves as a drinking water supply and supports a variety of aquatic life and wildlife. The North Platte River is also used for recreational purposes including fishing, swimming and boating.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the foregoing findings of fact, and after consideration of the administrative record, the Division Director, of EPA Region VIII, has made the following determinations:

1. Sinclair Oil Corporation is a "person" within the meaning of Section 1004(15) of RCRA, 42 U.S.C. §6903(15).

2. Sinclair Oil Corporation is the owner of the Little America Refining Company (LARCO) facility located in Evansville, Wyoming. LARCO is a registered tradename for Sinclair Oil Corporation and is the operator of a facility that has operated or is operating subject to Section 3005(e) of RCRA, 42 U.S.C. §6925(e).

3. Certain wastes and constituents thereof found at the LARCO Facility are hazardous wastes or hazardous constituents thereof as defined by Section 1004(5) of RCRA, 42 U.S.C. §6903(5), and Sections 1004(5) and 3001 of RCRA, 42 U.S.C. §6921, and 40 C.F.R. Part 261.

4. There is or has been onsite and possibly offsite release(s) of hazardous wastes and/or hazardous constituents from regulated units or SWMUs at LARCO.

5. Hazardous constituents listed in 40 CFR Part 261, Appendix VIII have been detected in the ground water under the LARCO facility and under the Brookhurst subdivision. The presence of these hazardous constituents in Brookhurst may have

resulted from releases from the regulated units or SWMUs located on the LARCO property or from other sources located in the vicinity of Brookhurst.

6. Releases of hazardous waste and hazardous constituents, which may be attributed to LARCO, continue to have the potential to migrate as vapors through soils to residences in the Brookhurst subdivision. Additionally, the releases continue to have the potential to migrate with ground water to the North Platte River.

7. The actions required by this Order are necessary to mitigate the potential adverse effects of release(s) of hazardous wastes and/or hazardous constituents to protect human health and/or the environment.

VI. WORK TO BE PERFORMED

Pursuant to Section 3008(h) of RCRA, 42 U.S.C. §6928(h), Sinclair is hereby ordered to perform the following acts in the manner and by the dates specified herein. All work undertaken pursuant to this Order shall be performed in a manner consistent with, at a minimum: the attached Scopes of Work in Attachments I (Interim Measures), II (RCRA Facility Inspection), III (Corrective Measures Study), and IV (Corrective Measures Implementation) of this Order and all of which are incorporated by reference as if fully set forth herein; RCRA and its implementing regulations; and applicable EPA guidance documents, and all applicable State statutes and regulations. Relevant EPA guidance may include, but is not limited to, the "RCRA Corrective Action Interim Measures" (OSWER Directive 9902.4, June 1988), "RCRA Corrective Action Plan" (OSWER Directive 9902.3, June 1988), "Draft RCRA Facility Investigation (RFI) Guidance" (EPA 530/SW-87-001, July 1987), "RCRA Ground Water Monitoring Technical Enforcement Guidance Document" (OSWER Directive 9950.1, September 1986), and "Test Methods for Evaluating Solid Waste" (SW-846), 3rd edition and all of which are incorporated herein by reference. The geographic scope for action under this Order shall include the entire LARCO Facility plus all possible areas to which hazardous wastes or hazardous constituents from the facility could migrate, including the waste water pipeline and evaporation ponds north of the North Platte River, as well as the affected portions of the North Platte River and Brookhurst Subdivision.

INTERIM MEASURES (IM)

1. Sinclair shall perform the Interim Measures (IM) in a manner consistent with the IM Scope of Work and schedule contained in Attachment I to this Order, which is incorporated by reference as if fully set forth herein. The Interim Measures to

be undertaken by Sinclair at the LARCO Facility shall include the following:

- a. Install and sample ground water monitoring wells and soil vapor wells in the adjacent Brookhurst subdivision and along the east facility boundary which will determine the rate and extent of migration of contaminated ground water and contaminated soil vapor;
- b. Operate the existing hydrocarbon recovery system according to State requirements, and evaluate the efficiency of the system;
- c. Install and operate a ground water and soil vapor extraction and treatment system along the eastern boundary of the LARCO property and within the adjacent Brookhurst subdivision to mitigate migration of contaminated ground water across the eastern boundary of the refinery complex into the Brookhurst subdivision and to mitigate the contamination present in the ground water and soils east of the refinery complex in the Brookhurst subdivision. At a minimum, the ground water recovery system must meet the requirements of paragraph "(7)" on page 6 of the Section 7003 order issued by EPA on April 19, 1988.

The Interim Measures shall be implemented in accordance with, at a minimum, RCRA, its implementing regulations, and relevant EPA guidance documents. Relevant guidance documents include, but are not limited to: "RCRA Ground Water Monitoring Technical Enforcement Guidance Document" (OSWER Directive 9950.1, September 1986) and "RCRA Corrective Action Interim Measures" (OSWER Directive 9902.4, June 1988; and "RCRA Corrective Action Plan, "(OSWER Directive 9902.3, June 1988).

2. Within thirty (30) calendar days of the effective date of this Order, Sinclair shall submit to EPA a Workplan for the implementation of Interim Measures ("IM Workplan"). The Workplan is subject to approval by EPA and shall be performed in a manner consistent with the IM Scope of Work in Attachment I to this Order. The IM Workplan shall be developed in accordance with, at a minimum, RCRA, its implementing regulations, and relevant EPA guidance documents. Relevant guidance documents include, but are not limited to: "RCRA Ground Water Monitoring Technical Enforcement Guidance Document" (OSWER Directive 9950.1, September 1986) and "RCRA Corrective Action Interim Measures" (OSWER Directive 9902.4, June 1988).

3. The IM Workplan shall ensure that the Interim Measures are designed to mitigate a current or potential threat(s) to human health and/or the environment posed to Brookhurst residents by mitigating the discharge of contaminated ground water into the

Brookhurst subdivision from Sinclair's LARCO facility and also mitigating the existing ground water contamination that is present in the Brookhurst subdivision which may be attributed to LARCO's activities. The IM Work Plan shall also ensure that the Interim Measures are consistent with and integrated into any long term solution at the facility to the extent practicable. The IM Workplan shall document the procedures to be used by Sinclair for the implementation of Interim Measures and shall include, but not limited to: the objectives of the Interim Measures; design, construction, operation, monitoring and maintenance requirements; and detailed schedules.

4. In accordance with Attachment I herein, the IM Workplan shall include: Interim Measures Objectives; a Health and Safety Plan; a Public Involvement Plan (Note: this is referenced as the "Community Relations Plan" in the RCRA Corrective Action Interim Measures guidance); a Data Collection Quality Assurance Plan; a Data Management Plan; Design Plans and Specifications; an Operation and Maintenance Plan; a Project Schedule; an Interim Measure Construction Quality Assurance Plan; and Reporting Requirements.

5. In the event Sinclair identifies a new or previously unidentified actual or perceived threat to human health and/or the environment, Sinclair shall immediately notify EPA orally within twenty-four (24) hours and in writing within seven (7) calendar days of the actual or perceived threat. The notification(s) shall summarize the immediacy and magnitude of the threat to human health or the environment. Within thirty (30) calendar days of notifying EPA, Sinclair shall submit to EPA a plan for approval that identifies additional Interim Measures to mitigate the threat. These additional Interim Measures shall be consistent with and integrated into any long-term solution at the Facility.

RCRA FACILITY INVESTIGATION (RFI)

6. Within sixty (60) calendar days of the effective date of this Order, Sinclair shall submit to EPA a Workplan for a RCRA Facility Investigation ("RFI Workplan"). The RFI Workplan shall be submitted to EPA for approval. Upon approval, the RFI shall be performed in a manner consistent with the RFI Scope of Work contained in Attachment II. Attachment II to this Order is incorporated by reference as if fully set forth herein. The RFI Workplan shall be developed in accordance with, at a minimum, RCRA, its implementing regulations, and relevant EPA guidance documents. Relevant EPA guidance documents may include, but are not limited to: "Draft RCRA Facility Investigation (RFI) Guidance" (EPA 530/SW-87-001, July 1987), "RCRA Ground Water Monitoring Technical Enforcement Guidance Document" (OSWER Directive 9950.1, September 1986), and "RCRA Corrective Action Plan" (OSWER Directive 9902.3, June 1988).

7. The RFI Workplan shall be designed to define the presence, magnitude, extent, direction, and rate of movement of any hazardous wastes or hazardous constituents within and beyond the Facility boundary. The RFI Workplan shall document the procedure Sinclair shall use to conduct those investigations necessary to: (1) characterize the potential pathways of contaminant migration; (2) identify all solid waste management units (SWMUs) and characterize the source(s) of contamination; (3) define the degree and extent of contamination; (4) identify actual or potential receptors; and (5) support the development of alternatives from which a corrective measure will be selected by EPA. A specific schedule for implementation of all RFI activities shall be included in the RFI Workplan, and shall include submission of progress reports, and a draft and final RFI report.

8. In accordance with the provisions of Attachment II herein, the RFI Workplan shall include at a minimum: (1) a Project Management Plan; (2) a Data Collection Quality Assurance Plan; (3) a Data Management Plan; (4) a Health and Safety Plan; and (5) a Public Involvement Plan (Note: this is referenced as the "Community Relations Plan" in the RCRA Corrective Action Plan).

CORRECTIVE MEASURES STUDY (CMS)

9. Within thirty (30) calendar days after EPA's acceptance of the final RFI report, Sinclair shall submit to EPA a plan for a Corrective Measure Study (the "CMS Workplan"). The CMS Workplan and activities conducted pursuant to this Order are subject to approval by EPA and shall be performed in a manner consistent with the scope of work contained in Attachment III. Attachment III to this Order is incorporated by reference as if fully set forth herein. The CMS Workplan shall be developed in accordance with, at a minimum, "RCRA Corrective Action Plan," (OSWER Directive 9902.3, June 1988), RCRA, and its implementing regulations. The draft report on the corrective measures study shall be submitted within ninety (90) calendar days of receiving EPA approval of the CMS Workplan. The CMS Workplan shall include explicit detailed tasks explaining how Sinclair will develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken by Sinclair that will achieve the necessary level of cleanup to protect human health and/or the environment. The CMS Workplan shall include a specific schedule for implementation of all activities described in the CMS Workplan including draft and final CMS reports.

CORRECTIVE MEASURES IMPLEMENTATION (CMI)

10. Within thirty (30) calendar days of Sinclair's receipt of notification of EPA's selection of the corrective measure, based on the final CMS report, Sinclair shall submit to EPA a Corrective Measures Implementation Workplan ("CMI Program Plan"). The CMI Program Plan is subject to approval by EPA and shall be performed in a manner consistent with the CMI Scope of Work contained in Attachment IV. Attachment IV to this Order is incorporated by reference as if fully set forth herein. The CMI Program Plan shall be developed in accordance with, at a minimum, RCRA, its implementing regulations, and relevant EPA guidance documents. Relevant EPA guidance documents may include, but is not limited to: "RCRA Corrective Action Plan" (OSWER Directive 9902.3, November 1986).

11. The CMI Program Plan shall be designed to facilitate the design, construction, operation, maintenance and monitoring of corrective measures at the Facility. In accordance with Attachment IV herein, the CMI Program Plan shall also include at a minimum: (1) a Project Management Plan; (2) a Community Relations Plan; (3) a Design Plans and Specifications; (4) an Operation and Maintenance Plan; (5) a Cost Estimate; (6) a Project Schedule; (7) a Health and Safety Plan; and (8) a Construction Quality Assurance Plan.

SUBMISSIONS/AGENCY APPROVAL/ADDITIONAL WORK

12a. EPA shall review the proposed Workplans and inform Sinclair in writing of its approval or disapproval of the Workplan or any part thereof. In the event of any disapproval, the writing shall specify the reasons for disapproval and any recommended modifications. Within ten (10) calendar days of receipt of such disapproval, Sinclair may request a meeting to attempt to resolve the dispute. Within thirty (30) calendar days of this meeting (if requested) or the receipt of EPA's disapproval of any Workplan, whichever is later, Sinclair shall amend, making the changes to the Workplan required by EPA, and resubmit the Workplan. In the event of subsequent disapproval of any Workplan, EPA retains the right to modify the Workplan or to take other appropriate action pursuant to its authority under CERCLA, RCRA, or other applicable statutes or legal theories. Any EPA approved Workplan shall be incorporated into this Order.

12b. Within thirty (30) calendar days of approval or modification by EPA of any Workplan(s) or Program Plan, Sinclair shall commence work and implement the tasks required by the Workplan(s) or Program Plan submitted pursuant to the Scope(s) of Work contained in Attachments I, II, III, and IV, in accordance with the standards, specifications and schedule stated in the Workplan(s) or Program Plan as approved or modified by EPA.

13. Beginning with the month following the effective date of this Order, Sinclair shall provide EPA with progress reports for each month by the tenth calendar day of the following month. At a minimum, these progress reports shall: (1) describe the actions which have been taken toward achieving compliance with this Order; (2) identify any problem areas in complying with the Order; (3) include the results of sampling, tests, all raw data, and other data gathered pursuant to the work plan; and (4) describe all plans and procedures completed during the past month, as well as the actions which are scheduled for the next month.

14. Sinclair shall provide draft and final Interim Measures, RCRA Facility Investigation, Corrective Measure Study and Corrective Measures Implementation reports to EPA in accordance with the schedule contained in this Order and its attachments.

15. EPA will review all draft or final reports and notify Sinclair in writing of EPA's approval/disapproval or modification of the report, or any part thereof. In the event of any disapproval, EPA shall specify in writing the deficiencies and reasons for such disapproval. Within fourteen (14) calendar days of receipt of such disapproval, Sinclair may request a meeting to attempt to resolve the dispute. Within fourteen (14) calendar days of the date of the meeting, if requested, or the receipt of EPA's disapproval, whichever is later, Sinclair shall amend and resubmit a revised report. In the event of subsequent disapproval, EPA retains the right to amend the report, to perform additional studies, or to take any other appropriate action pursuant to its authority under CERCLA, RCRA, or other applicable statutes or laws. EPA approved reports shall be deemed incorporated into and part of this Order.

16. Two (2) copies of all documents, including Workplan(s), Program Plan(s), preliminary and final reports, progress reports, and other correspondence to be submitted pursuant to this Order shall be hand delivered or sent by certified mail, return receipt requested, to both EPA and the State of Wyoming pursuant to Section XIII of this Order.

17. All work performed pursuant to this Order shall be under the direction and supervision of a professional engineer or geologist with expertise in hazardous waste site cleanup. Sinclair shall notify EPA in writing of the name, title, and qualifications of the engineer or geologist, and of any contractors or subcontractors and their personnel to be used in carrying out the terms of this Order within thirty (30) calendar days of the effective date of this Order.

18. EPA may determine that certain tasks, including investigation work or engineering evaluation, are necessary in addition to the tasks and deliverables included in the IM Workplan, the RFI Workplan, the CMS Workplan and/or the CMI Program Plan when new information indicates that such additional work is necessary. EPA will request in writing that Sinclair perform the additional work in this situation and shall specify the basis and reasons for EPA's determination that the additional work is necessary. Within fourteen (14) calendar days after the receipt of such request, Sinclair may request a meeting with EPA to discuss the additional work. Thereafter, Sinclair shall perform the additional work EPA has requested according to an EPA approved Workplan. If Sinclair declines to undertake some or all of the additional work, EPA retains the right to undertake the work or to take any other appropriate action under the authority of CERCLA, RCRA, or other applicable statutes or laws. All additional work performed by Sinclair under this paragraph shall be performed in a manner consistent with this Order. The final IM/RFI/CMS reports to be presented for public comment pursuant to Section VIII of this Order, shall consist of the final reports called for in the work plans, plus any reports related to additional work performed by EPA or Sinclair.

VII. QUALITY ASSURANCE

Throughout all sample collection and analysis activities, Sinclair shall use EPA-approved quality assurance, quality control, and chain-of-custody procedures as specified in the approved Workplans and Program Plans. In addition, Sinclair shall:

1. Ensure that laboratories used by Sinclair for analyses perform such analyses according to the EPA methods included in "Test Methods for Evaluating Solid Waste" (SW-846), 3rd edition, or other methods deemed satisfactory to EPA. If methods other than EPA methods are to be used, Sinclair shall submit all protocols to be used for analyses to EPA for approval fourteen (14) calendar days prior to the commencement of analyses.

2. Ensure that laboratories used by Sinclair for analyses participate in a quality assurance/quality control program equivalent to that which is followed by EPA. As part of such a program, and upon request by EPA, such laboratories shall perform analyses of samples provided by EPA to demonstrate the quality of the analytical data.

3. Inform the EPA seven (7) calendar days in advance which laboratories will be used by Sinclair and ensure that EPA personnel and EPA authorized representatives have reasonable access to the laboratories and personnel used for analyses.

4. Use the EPA guidance documents to evaluate all data to be used in the proposed plans required by Section VI of this Order. This evaluation shall be provided to EPA as part of the Plans required by Section VI of this Order, and shall be updated as required by EPA.

VIII. PUBLIC COMMENT AND PARTICIPATION

1. Upon approval of EPA of a Corrective Measure Study Final Report, EPA shall make the Interim Measures Final Report, the RCRA Facility Investigation Final Report (or summary of report), and the Corrective Measure Study Final Report (or summary of report) and a summary of EPA's proposed corrective measure and EPA's justification for proposing selection of that corrective measure available to the public for review and comment for at least twenty-one (21) calendar days.

2. Following the public review and comment period, EPA will notify Sinclair of the corrective measure selected by EPA. If the corrective measure recommended in the Corrective Measure Study Final Report is not the corrective measure selected by EPA after consideration of public comments, EPA will inform Sinclair in writing of the reasons for such decision, and Sinclair shall modify the RFI/CMS as directed to do so by EPA, and commence the CMI phase as required.

3. The Administrative Record supporting the selection of the corrective measure will be available for public review at the EPA Region VIII offices during normal business hours. Hazardous Waste Management Division, EPA Region VIII, 999-18th Street, Denver, Colorado from 8 a.m. to 5 p.m., regular business days.

IX. ON-SITE AND OFF-SITE ACCESS

1. EPA and/or any EPA representative are authorized pursuant to Section 3007 of RCRA to enter and freely move about all property at the Facility during the effective dates of this Order for the purposes of, inter alia: interviewing Facility personnel and contractors; inspecting records, operating logs, and contracts related to the Facility's compliance with this Order; reviewing the progress of Sinclair in carrying out the terms of this Order; conducting such tests, sampling or monitoring as EPA or its Project coordinator deem necessary; using a camera, or other documentary type equipment; and verifying the reports and data submitted to EPA by Sinclair. Sinclair shall permit such persons to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, that pertain to work undertaken pursuant to this Order. Sinclair shall comply with all approved health and safety plans.

2. To the extent that work required by this Order, or by any approved Program Plans or Workplans prepared pursuant hereto, must be done on property not owned or controlled by Sinclair, Sinclair shall use its best efforts to obtain site access agreements from the present owner(s) of such property within fifteen (15) calendar days of approval of any Workplan for which site access is required. Best efforts as used in this paragraph shall include, at a minimum, a certified letter from Sinclair to the present owners of such property requesting access agreements to permit Sinclair and EPA and its authorized representatives to access such property. Any such access agreement shall be incorporated by reference into this Order. In the event that agreements for access are not obtained within thirty (30) calendar days of EPA approval, Sinclair shall notify EPA in writing within seven (7) calendar days thereafter regarding both the efforts undertaken to obtain access and its failure to obtain such agreements. In the event EPA obtains access, Sinclair shall undertake EPA approved work on such property.

3. Nothing in this section limits or otherwise affects EPA's rights of access and entry pursuant to applicable law, including RCRA and CERCLA.

X. SAMPLING AND DATA/DOCUMENT AVAILABILITY

1. Sinclair shall submit to EPA the results of all sampling and/or tests and all other data generated by, or on behalf of Sinclair, in accordance with the requirements of this Order and its attachments.

2. Sinclair shall notify EPA at least seven (7) calendar days before engaging in any field activities, such as well drilling, installation of equipment, or sampling. At the request of EPA, Sinclair shall provide or allow EPA or its authorized representative to take split samples of all samples collected by Sinclair pursuant to this Order.

3. Sinclair may assert a business confidentiality claim covering all or part of any information submitted to EPA pursuant to this Order. Any assertion of confidentiality shall be adequately substantiated by Sinclair when the assertion is made. Information determined to be confidential by EPA shall be disclosed only to the extent permitted by 40 CFR Part 2. If no such confidentiality claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to Sinclair. Physical or analytical data or other data documenting contamination shall not be deemed confidential.

XI. RECORD PRESERVATION

Sinclair shall preserve, during the pendency of this Order and for a minimum of six (6) years after its termination, all data, records and documents in its possession or in the possession of its divisions, officers, directors, employees, agents, contractors, successors and assigns which relate in any way to this Order or to hazardous waste management and/or disposal at the Facility. After six (6) years, Sinclair shall make such records available to EPA for inspection or shall provide copies of any such records to EPA. Sinclair shall notify EPA thirty (30) calendar days prior to the destruction of any such records, and shall provide EPA with the opportunity to take possession of any such records.

XII. PROJECT COORDINATOR

1. On or before the effective date of this Order, Sinclair shall designate a Project Coordinator. Sinclair shall notify EPA in writing of the Project Coordinator it has selected. The Project Coordinator shall oversee the implementation of this Order.

2. Sinclair shall provide EPA at least seven (7) calendar days written notice prior to changing Project Coordinators.

3. If EPA determines that activities in compliance or noncompliance with this Order, have caused or may cause a release of hazardous waste, hazardous constituent, or a pollutant or contaminant, or a threat to human health or the environment or that Sinclair is not capable of undertaking any studies or corrective measures ordered, EPA may order Sinclair to stop further implementation of this Order for such period of time as EPA determines may be needed to abate any such release or threat and/or to undertake any action which EPA determines is necessary to abate such release or threat.

4. The absence of the Project Coordinator from the Facility shall not be cause for the stoppage of work.

XIII. NOTIFICATION

Unless otherwise specified, Sinclair shall send two (2) copies of all written reports, Workplans, correspondence, approvals, disapprovals, notices or other submissions relating to or required under this Order to each of the following addressees:

Mr. Terry Anderson, Chief
Wyoming/South Dakota Section
RCRA Implementation Branch
U.S. EPA, Region VIII
999 18th Street, Suite 500
Denver, CO 80202-2405

and

Mr. David Finley
Solid Waste Program
Wyoming Department of
Environmental Quality
Herschler Buidling
4th Floor West 25th Street
Cheyenne, WY 82002

XIV. PENALTIES FOR NONCOMPLIANCE

If Sinclair fails to comply with the terms and provisions of this Order, EPA may commence a civil action to require compliance and to assess a civil penalty not to exceed \$25,000 for each day of non-compliance and/or issue another Administrative order for each instance of non-compliance and for assessing penalties.

XV. RESERVATION OF RIGHTS

1. EPA expressly reserves all rights and defenses that it may have, including the right both to disapprove of work performed by Sinclair pursuant to this Order and to request that Sinclair perform tasks in addition to those stated in the Scope(s) of Work, Work Plans, and Program Plan.

2. EPA hereby reserves all of its statutory and regulatory powers, authorities, rights, remedies, both legal and equitable, which may pertain to Sinclair's failure to comply with any of the requirements of this Order, including without limitation to the assessment of penalties under Section 3008(h) of RCRA, 42 U.S.C. §6928(h)(2). This Order shall not be construed as a covenant not to sue, release, waiver or limitation of any rights, remedies, powers and/or authorities, civil or criminal, which EPA has under RCRA, CERCLA, or any other statutory, regulatory or common law enforcement authority of the United States.

3. Compliance by Sinclair with the terms of this Order shall not relieve Sinclair of its obligations to comply with RCRA or any other applicable local, state or federal laws and regulations.

4. This Order shall not limit or otherwise preclude the Agency from taking additional enforcement action pursuant to Section 3008(h) of RCRA or other available legal authorities should the Agency determine that such actions are warranted.

5. This Order is not intended to be nor shall it be construed as a permit. This Order does not relieve Sinclair of any obligation to obtain and comply with any local, state or federal permits.

6. EPA reserves the right to perform any portion of the work herein or any additional site characterization, feasibility study and response/corrective actions as it deems necessary to protect human health and the environment. EPA may exercise its authority under CERCLA to undertake removal actions or remedial actions at any time. In any event, EPA reserves its right to seek reimbursement from Sinclair for such additional costs incurred by the United States. Notwithstanding compliance with the terms of this Order, Sinclair is not released from liability, if any, for the costs of any response actions taken or authorized by EPA.

XVI. OTHER CLAIMS

Nothing in this Order shall constitute or be construed as a release from any claim, cause or action or demand in law or equity against any person, firm, partnership, or corporation for any liability it may have arising out of or relating in any way to other generation, storage, treatment, handling, transportation, release, or disposal of any hazardous constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility.

XVII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations. Sinclair shall obtain or cause its representatives to obtain all permits and approvals necessary under such laws and regulations.

Nothing in this Order precludes the State of Wyoming from exercising its authorities under the Wyoming Environmental Quality Act (Laws 1973, ch.250. Sec. 1), and /or any other applicable state laws and regulations.

XVIII. INDEMNIFICATION OF THE UNITED STATES GOVERNMENT

Sinclair shall indemnify and save and hold harmless the United States Government, its agencies, departments, agents, and employees, from any and all claims or causes of action arising from or on account of acts or omissions of Sinclair or its agents, independent contractors, receivers, trustees, and assigns in carrying out activities required by this Order. The United States Government shall not be held out or construed to be a party to any contract entered into by Sinclair in carrying out activities pursuant to this Order.

EPA shall not be liable for any injury or damages to persons or property resulting from acts or omissions of Sinclair or its contractor(s) in implementing the requirements of this Order, or any EPA-approved worked plans or planning documents submitted pursuant to this Order. EPA shall not be considered a party to any contract entered into by Sinclair for purposes of implementaiton this Order.

XIX. FINANCIAL RESPONSIBILITY

1. Within thirty (30) calendar calendar days of receipt of written EPA approval for each of the IM/RFI/CMS/CMI Workplans, Sinclair shall provide financial assurance using one or more of the mechanisms allowable under 40 C.F.R. §264.143, in an amount equal to 150% of the total of all cost estimates in the IM/RFI/CMS/CMI Work Plans.

2. The purpose of the financial assurance mechanism is to guarantee performance of and payment for the IM/RFI/CMS/CMI activities in accordance with the terms and conditions of this Order.

XX. SUBSEQUENT MODIFICATION

1. This Order may be amended by EPA. Such amendments shall be in writing, shall have as their effective date on which they are signed by EPA, and shall be incorporated into this Order.

2. Any reports, plans, specifications, schedules, and attachments required by this Order are, upon written approval by EPA, incorporated into this Order. Any noncompliance with such EPA approved report, plans, specifications, schedules, and attachments shall be considered a violation of this Order and shall subject Sinclair to the statutory penalty provisions referenced in Section XIV of this Order.

3. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by Sinclair will be construed as relieving Sinclair of its obligation to obtain written approval, if and when required by this Order.

XXI. SEVERABILITY

If any provision or authority of this Order or the application of this Order to any party or circumstances is held by any judicial or administrative authority to be invalid, the application of such provisions to other parties or circumstances and the remainder of the Order shall remain in force and shall not be affected thereby.

XXII. NOTICE OF OPPORTUNITY TO REQUEST A HEARING

In accordance with Section 3008(b) of RCRA, 42 U.S.C. §6928(b), the Order shall become final unless Sinclair files a response and requests a public hearing in writing no later than (30) calendar days after service of the Order and Notice of Opportunity for Hearing. The administrative hearing procedures are discussed in the April 13, 1988, Federal Register.

(a) The response and request for hearing must be filed with:

Regional Hearing Clerk
U.S. EPA Region VIII
999 18th Street, Suite 500
Denver, CO 80202-2405

A copy of the response and request for hearing and copies of all subsequent documents filed in this action must be sent to Office of Regional Counsel, at the same address. The response must specify each factual or legal determination or relief provision in the Order Sinclair disputes and shall specify the basis upon which it disputes such determination or provision. The response should also include any proposals for modification of the Order. Any hearings on the order will be conducted in accordance with the provisions as specified in 40 C.F.R. Part 24.

This Order, in part, directs Sinclair to undertake Interim Measures, a RCRA Facility Investigation (RFI), and a Corrective Measures Study, which includes monitoring, surveys, testing, information gathering, analyses, and studies (including studies designed to develop recommendations for appropriate corrective measures); therefore, according to 40 Part C.F.R. §24.08, the appropriate hearing procedure is that set forth in Subpart B. Sinclair may include with its response to the Order and request for a hearing, a statement indicating whether it believes the Subpart C hearing procedures should be employed for the requested hearing and the reason(s) therefore.

(b) If Sinclair fails to file a response and request for hearing within thirty (30) calendar days after service of the Order, Sinclair will be deemed to have waived its right a hearing and the Order will become final.

(c) The administrative record supporting the issuance of this Order is available for review during normal business hours in the EPA Region VIII offices.

XXIII. SETTLEMENT CONFERENCE

Whether or not Sinclair requests a hearing, an informal conference may be requested in order to discuss the facts of this case and to arrive at settlement. To request an informal conference contact:

Mr. Terry Anderson, Chief
Wyoming/South Dakota Section
RCRA Implementation Branch
U.S. EPA, Region VIII
Denver Place
999 18th Street, Suite 500
Denver, CO 80202-2405
(303) 293-1800

A request for an informal conference does not extend the thirty (30) day period during which a written response and request for a hearing must be submitted. The informal conference procedure may be pursued simultaneously with the public adjudicatory hearing procedure.

XXIV. TERMINATION AND SATISFACTION

The provisions of this Order shall be deemed satisfied upon Sinclair's receipt of written notice from EPA that Sinclair has demonstrated, to the satisfaction of EPA, that the terms of this Order, including any additional tasks determined by EPA to be

required pursuant to this Order, but not including any continuing obligation or promises (e.g., record retention) have been satisfactorily completed.

XXV. SURVIVABILITY/PERMIT INTEGRATION

1. Subsequent to the issuance of this Order, a RCRA permit may be issued to the facility incorporating the requirements of this Order by reference into the permit.

2. Any requirements of this Order shall not terminate upon the issuance of a RCRA permit unless the requirements are expressly replaced by more stringent requirements in the permit.

XXVI. EFFECTIVE DATE

This Order shall become final and effective thirty (30) calendar days after it is served unless Sinclair requests a hearing pursuant to RCRA Section 3008(b), 42 U.S.C. §6928(b).

IT IS SO ORDERED:

BY: 

Robert L. Duprey, Director
Hazardous Waste Management Division

DEC 1 1983

Date

Effective Date:

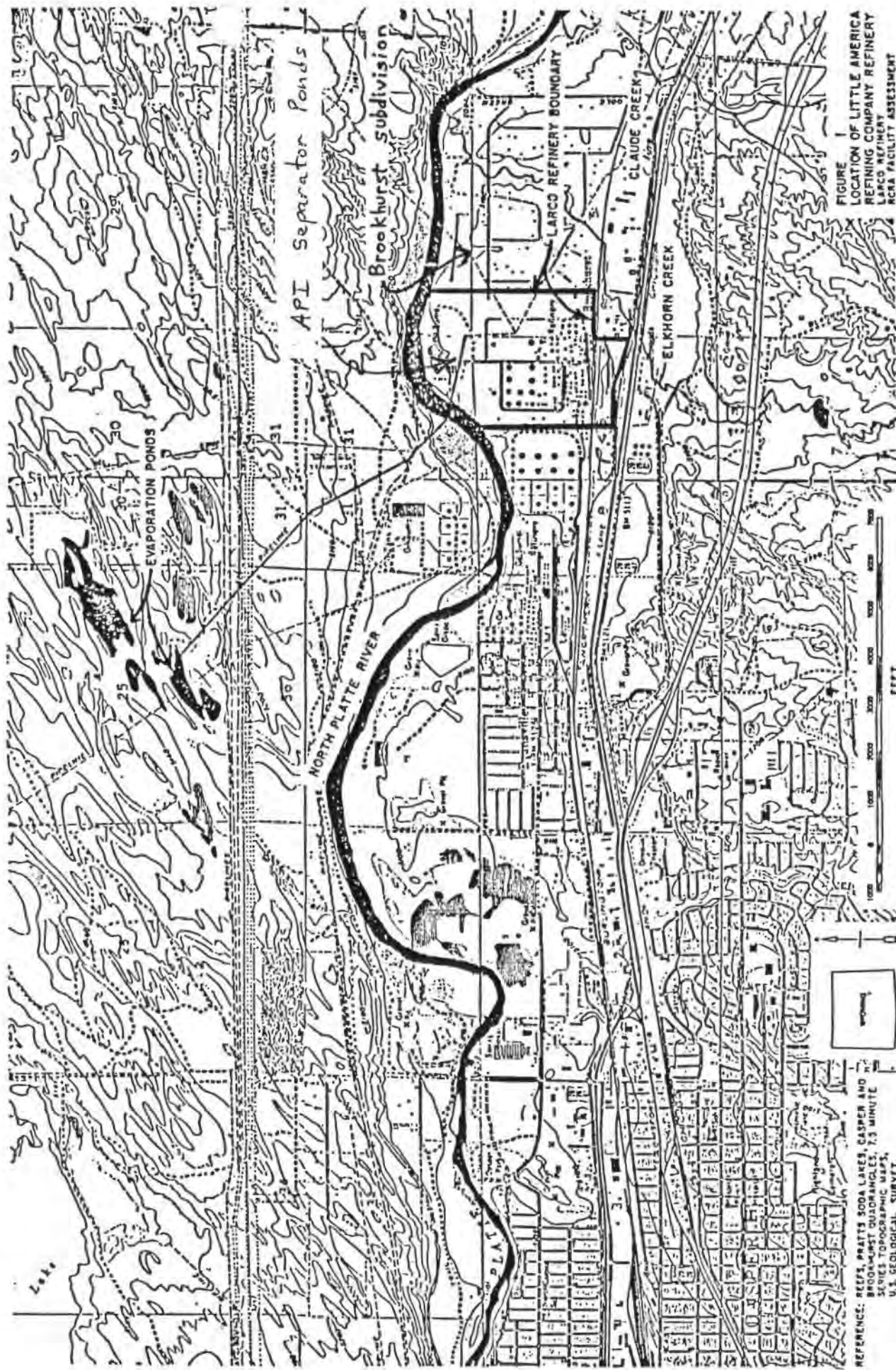


FIGURE 1
LOCATION OF LITTLE AMERICA
REFINING COMPANY REFINERY
LARCO REFINERY
NCSA FACILITY ASSESSMENT

REFERENCE: REEF, PRATT'S SODA LAKES, CASPER AND
BROOKHURST QUADRANGLES, 7.5 MINUTE
SERIES TOPOGRAPHIC MAPS,
U.S. GEOLOGICAL SURVEY.

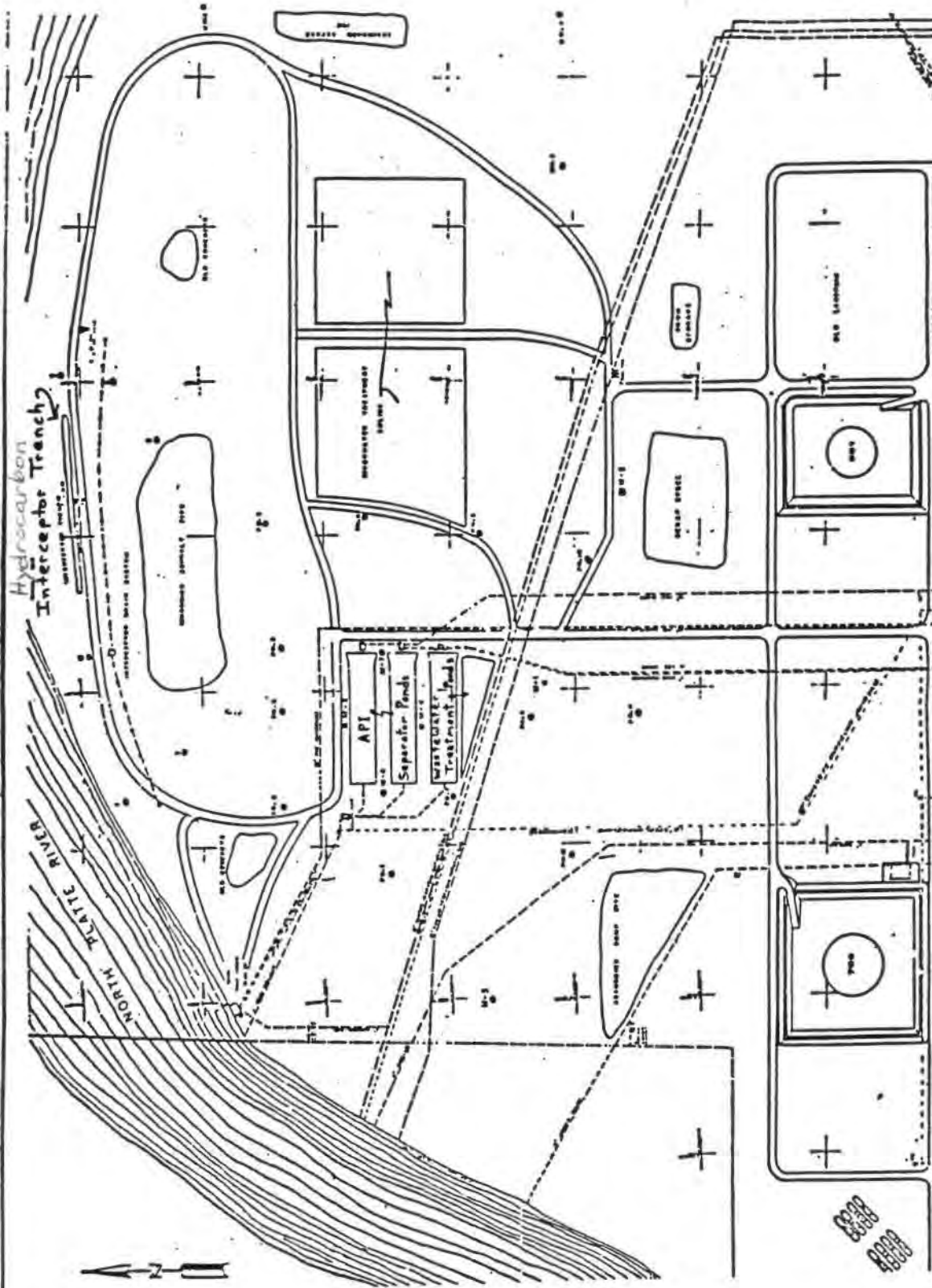
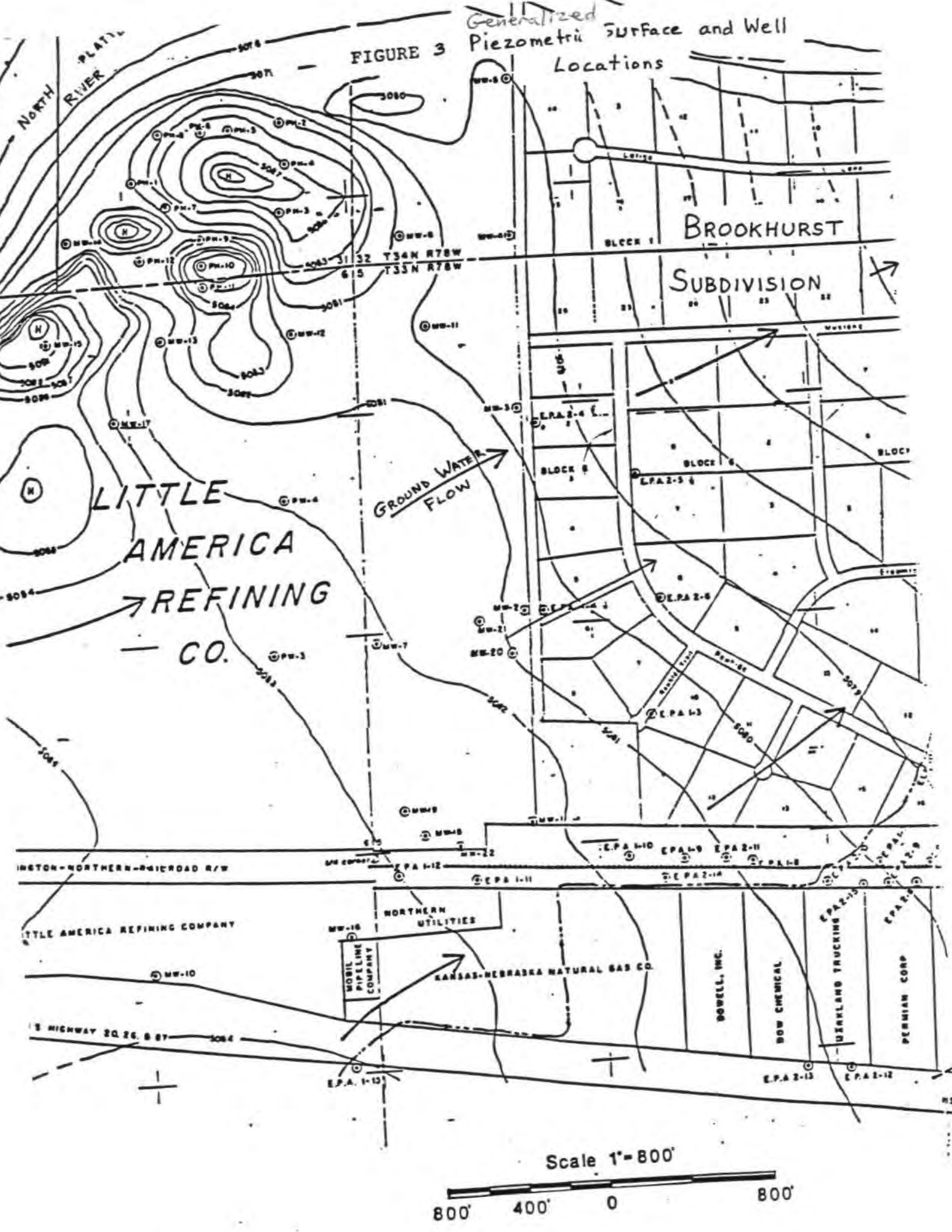


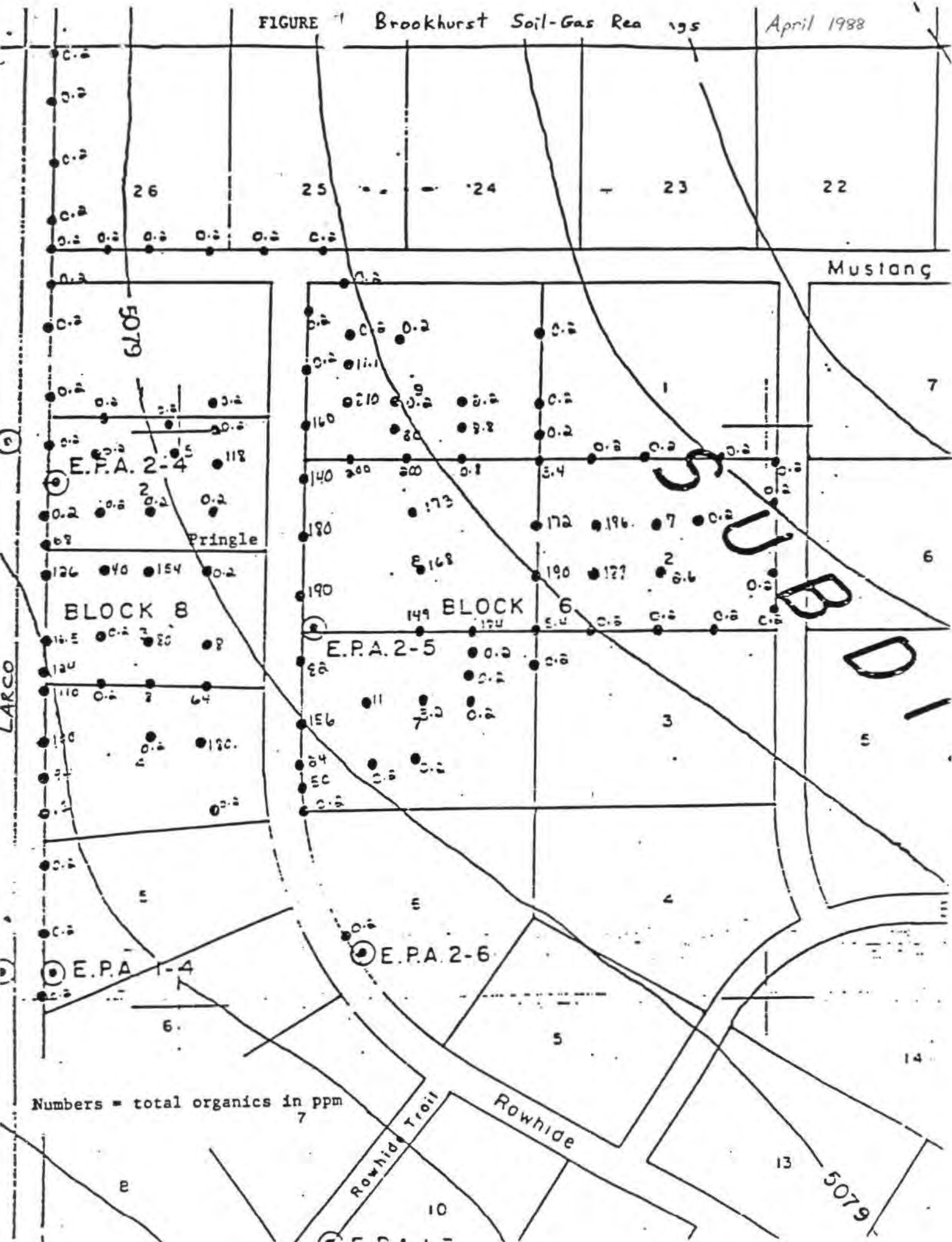
FIGURE 2
SELECTED
SOLID WASTE MANAGEMENT UNIT LOCATOR
MAP
LITTLE AMERICA REFINERY



Toxicology References

Casarett and Doull's "Toxicology", The Basic Science of Poisons, Third Edition, Macmillan Publishing Company, New York, 1986.

Sittig, M., "Handbook of Toxic and Hazardous Chemicals", Noyes Publications, New Jersey, 1981.



CERTIFICATE OF SERVICE

The undersigned hereby certifies that the original and one copy of the attached Unilateral Section 3008(h) Administrative Order were hand-carried to the Regional Hearing Clerk, EPA Region VIII, 999-18th Street, Denver, Colorado and that a true copy of the same was sent, certified mail, return receipt requested to:

Mr. M.D. Ensign
550 E South Temple
Salt Lake City, Utah 84130

Dec. 1, 1988
Dated

Judith M. McTernan
Judith M. McTernan

ATTACHMENT I

SCOPE OF WORK FOR THE INTERIM MEASURES IMPLEMENTATION AT LITTLE AMERICA REFINING COMPANY, INC. (LARCO) EVANSVILLE, WYOMING

Purpose

The purpose of this Interim Measures (IM) Program is to mitigate potential adverse effects from releases of hazardous waste or hazardous constituents, which may be attributed to LARCO, to the Brookhurst residential subdivision and the North Platte River. The Interim Measure Program consists of three specific tasks: The first task is to immediately install the sample ground water monitoring wells and soil vapor wells in the Brookhurst subdivision and along the east facility boundary in areas that have a probability of showing ground water or soil vapor contamination, and in areas where contaminated ground water or contaminated soil vapor has a probability of impacting receptors. The second task is to operate and modify as necessary, the current facility hydrocarbon recovery system. The third task is to mitigate the short- and long-term risks associated with the contaminated ground water and soil vapor that is present in or flowing to the Brookhurst subdivision, or migrating to the North Platte River, due to releases that may be attributed to Sinclair's LARCO Facility. These tasks are outlined below. The IM Program must be conducted in a manner consistent with the requirements outlined in Attachment II (RCRA Facility Investigation).

Tasks

- Task 1: Installation and sampling of ground water and soil vapor monitoring wells in Brookhurst and along the east facility boundary to determine the rate and extent of migration of contaminated ground water (including immiscible hydrocarbons);
- Task 2: Evaluation and operation of current facility hydrocarbon recovery system in accordance with State requirements;
- Task 3: Installation and operation of a contaminated ground water (including immiscible hydrocarbons) and soil vapor recovery system on the east side of the facility, and in Brookhurst.

Scope of Work

Task 1

The objective of Task 1 is to immediately determine the presence of contaminated ground water and soil vapors that may impact the Brookhurst subdivision. To accomplish this task, Sinclair shall perform the following activities:

1. Sinclair shall install additional ground water monitoring wells and soil vapor wells in Brookhurst and along the east facility boundary. These wells shall be located at appropriate spacings and depths to fully define the horizontal and vertical extent of contamination in and around Brookhurst, and shall be placed in areas of highest known contaminant levels using existing ground water and soil vapor data. The ground water monitoring wells shall be installed, developed, and sampled according to the requirements given below.
2. All ground monitoring wells shall be located, constructed, and sampled so as to yield samples of ground water that are representative of ground water in the uppermost aquifer. The wells shall have screens that are ten feet (or hydrocarbon layer thickness) in length. The screen shall be placed so that the ground water surface of the uppermost aquifer is within the screened interval.
3. The bore holes in which the ground water monitoring wells are constructed should be made by use of a hollow stem auger where feasible. The drilling shall be performed in a manner that minimizes the disturbance of subsurface materials and minimizes the introduction of contamination. The borings shall yield continuous cores of the materials from the surface to at least a depth at which unweathered bedrock is encountered. Detailed lithologic logs shall be prepared and the information shown in Table I-3 of this attachment shall be obtained.
4. Construction materials for well casings (in the saturated zones) and for well screens shall be made of inert material. The upper casing (above saturated zone) can be constructed of a different material such as steel, PVC, polyethylene and polypropylene. No glue or solvents shall be used to seal joints in plastic-pipe sections.
5. A well diameter of at least 4 inches shall be used.
6. For the wells placed in saturated conditions, the space between the face of the formation and the screen shall be filled to prohibit passage of formation materials into

the well. The filter pack must be made of clean quartz sand or chemically inert beads (i.e., silica or glass). The screen selected for the wells must be strong enough to resist collapse, be both physically and chemically durable, have openings that will stabilize the flow, and minimize the friction loss for the anticipated flow. Slot size will be selected based on sieve analysis of the sand pack, formation, and flow characteristic of the water bearing matrix. The sand pack shall not exceed the depth of the screen nor exceed the top of the screen by more than one foot.

7. Bentonite pellets, bentonite-Portland cement mixtures or anti-shrink cement mixtures must be used as sealants in the annular space above the saturated zone. Untreated bentonite pellets or untreated bentonite/water slurry must be used in the saturated zone. If bentonite pellets are being used, provide details on how the pellets will be hydrated. If a slurry is used, a chemical analysis of the slurry extract must be performed. The upper five or ten feet of the well casing shall be sealed with expanding neat cement to provide an adequate surface well seal.

Locking caps and bumper guards shall be installed on the wells for security purposes. A tremie pipe shall be used to place the sealant in the annular space. No concrete shall be emplaced within or below the screen interval.

8. The wells must be developed using surge blocks to restore the natural hydraulic conductivity of the formation and eliminate turbidity. Only formation water must be used. All equipment used to develop the well must be steam cleaned before introduction to the well. If ground water samples in excess of five turbidity unit are produced, the well should be redeveloped or replaced.

9. Sinclair shall develop a written ground water sampling and analysis plan that shall be followed for all ground water sampling and analysis activities required by the Order. At a minimum the plan shall include the following and be consistent with the EPA document: RCRA Ground Water Monitoring Technical Enforcement Guidance Document (September 1986):

- A. The sampling and analysis plan must include provisions for the measurement of static water level elevations in each well prior to sampling or purging. Field measurements must include depth to standing water and total depth of the well. The measurements must be taken to 0.01 foot. The water level indicator must be calibrated prior to water

levels being taken and correction factors logged in a notebook. Each well must have a reference point from which its water level is taken. The reference point must be established by a licensed surveyor and is typically located at the top of the well casing with the locking cap off. The reference point must be established in relation to mean sea level and the survey must also note the well location coordinates. The device which is used to detect the water level surface must be sufficiently sensitive so that a measurement to + 0.01 foot can be obtained reliably.

- B. The sampling and analysis plan must include provisions for detecting immiscible contaminants, i.e., "floaters" and "sinkers". The sampling and analysis plan shall specify the device to be used to detect "floaters" and "sinkers" as well as the procedures to be used for detecting and sampling these contaminants.
- C. Sampling of immiscible fractions shall precede well evacuation/ purging. A bottom filling bailer should be lowered to the levels at which the light and/or dense phase immiscibles are found and a sample taken. If a thin floating immiscible layer is present, a transparent bailer should be used to obtain a sample of the immiscible phase. Care must be taken to gently lower the bailer to avoid, as much as possible, disturbing the interface between the organic liquid and water.
- D. The sampling and analysis plan shall include procedures for evacuating stagnant water from a well immediately prior to sampling. The procedure used for well evacuation depends on the yield of the well. When evacuating low yield wells, evacuate wells to dryness once. As soon as the well recovers with enough water to collect samples, they should be collected. As soon as the well recovers to this level, the first samples collected are the ones to be tested for volatilization sensitive parameters. Parameters that are not pH sensitive or subject to loss through volatilization (such as nonvolatile or nonreactive organics) should be drawn last. At no time can a well be evacuated to dryness if the recharge rate causes the formation water to vigorously cascade down the intake screen and accelerate the loss of volatiles. If this could be a problem, purge three casing volumes from the well at a rate which does not cause the recharge water to be excessively agitated but not so slow as to not provide adequate flushing. For higher yielding

wells, evacuate three casing volumes prior to sampling, and begin sampling immediately.

- E. Well purging shall be accomplished by either a positive gas displacement bladder pump or a teflon bottom filling bailer.
- F. If nondedicated purging or sampling equipment is employed the sampling and analysis plan shall describe decontamination procedures that will be employed so as to eliminate cross contamination problems.
- G. The sampling and analysis plan must specify in detail the devices that will be used for sample withdrawal. The plan shall state that devices are either dedicated to a specific well or are capable of being fully disassembled and cleaned between sampling events. Appropriate cleaning procedures shall be specified in the plan.
- H. Double ball, bottom filling bailers or positive gas displacement bladder pumps constructed of inert materials shall be used for sampling. If bailers are used, new polyethylene or polypropylene rope shall be used. This rope shall be changed for each well in which the bailer is used. If a bladder pump is employed the pumping rate during sampling shall not exceed 100 milliliters per minute.
- I. Field measurements of pH, specific conductance and temperature shall be obtained and recorded prior to well sampling but after well purging. All field measuring equipment shall be calibrated prior to each use according to manufacturer's specifications and consistent with the EPA document: Test Methods for Evaluating Solid Waste - Physical/Chemical Methods - Third Edition (SW-846). Calibration data shall be recorded for each instrument.
- J. Field preservation techniques shall be employed for the appropriate parameters. The sampling and analysis plan shall identify the preservation methods which shall be consistent with the EPA document: Test Methods for Evaluating Solid Waste - Physical/Chemical Methods -Third Edition (SW-846).
- K. The sampling and analysis plan shall identify the types of sample containers used to collect samples as well as the procedures that will be used to ensure that sample containers are free of contaminants prior to use. This shall be consistent

with the EPA document: Test Methods for Evaluating Solid Waste - Physical/Chemical Methods - Third Edition (SW-846).

- L. The sampling and analysis plan shall be written so that field, trip and equipment blanks are obtained during each sampling event. These shall be used to determine if the sample collection and handling process has affected the quality of field samples. These blanks shall be subject to the same analysis as used for the samples.
- M. The sampling and analysis plan shall include the use of standards, laboratory blanks, duplicates, and spike samples for calibration and identification of potential matrix interferences.
- N. The sampling and analysis plan shall include a chain-of-custody program. This shall include:
 - i) sample labels
 - ii) sample seals
 - iii) field logbook
 - iv) chain-of-custody
 - v) sample analysis request sheets
 - vi) laboratory logbook

The chain-of-custody program given in the sampling and analysis plan shall be consistent with the EPA document: RCRA Ground Water Monitoring Technical Enforcement Document (September 1986).

- O. The sampling and analysis plan shall describe the analytical procedures that will be used to determine the concentrations of constituents or parameters of interest. A specific method shall be identified for each parameter or constituent of interest. The specified method shall be from the U.S. EPA document: Test Methods of Solid Waste - Physical/Chemical Analysis - Third Edition (SW-846), or other EPA approved method.
 - P. Ground water samples shall not be filtered, except in the case of metals in which case, samples will be analyzed for both dissolved (filtered) and total metals (unfiltered).
10. The ground water monitoring wells described in paragraph 1 of this Task, shall be installed and developed within forty-five (45) calendar days from the effective date of the Order.

11. Within sixty (60) calendar days of the effective date of the Order Sinclair shall obtain samples of ground water from all additional ground water monitoring wells. Ground water samples shall be analyzed for the parameters/constituents given in Table I-1. If an immiscible phase is present in any of these wells, a sample of the immiscible phase shall also be obtained and analyzed for the parameters/constituents given in Table I-2. All ground water sampling and analysis shall follow the ground water sampling analysis plan that was developed according to the requirements of paragraph 9 of this Task. In addition, within sixty (60) calendar days of the effective date of the Order Sinclair shall sample all soil vapor wells for Appendix IX organic vapors using a GCMS.
12. Sinclair shall perform monthly sampling and analysis of ground water and immiscible phases from the wells described in paragraph 11 of this Task. This sampling and analysis shall be performed according to the ground water sampling and analysis plan developed pursuant to paragraph 9 of this section. The samples shall be analyzed for the parameters/constituents given in Tables I-1 and I-2. Soil vapor monitoring wells also should be installed and tested for organic vapors at least monthly using an Hnu or OVA meter. Sinclair may propose alterations to this monitoring program in the RCRA Facility Investigation (RFI) work plan that is to be submitted to EPA.
13. Within two (2) days prior to performing the ground water sampling required by paragraphs 11 and 12 of this Task, Sinclair shall determine the elevations of ground water (in relation to mean sea level) in all wells/peizometers shown in Figures I-1 and I-2. In addition the thickness of any immiscible phase present in these wells also shall be recorded.
14. For the new ground water monitoring wells installed pursuant to paragraph 9 of this section, Sinclair shall determine the horizontal location of the wells and also the elevation of the top of casings. Within sixty (60) calendar days of the effective date of the Order, horizontal locations shall be surveyed to within + one foot. The elevation shall be determined to + 0.01 foot. All surveying shall be performed by a registered professional land surveyor.
15. All ground water produced during development, purging or sampling of ground water monitoring wells shall be contained by Sinclair and disposed of in an appropriate manner.

16. Sinclair shall submit the following reports and/or information regarding Task 1 of the Interim Measures corrective action program according to the schedules indicated, in addition to the reports and information required by other sections of the Order.

- i) For each boring completed pursuant to paragraph 3 of this task, Sinclair shall submit to EPA, final lithologic logs, field logs and notes, and the information contained in Table I-3 within thirty (30) calendar days of completion of the last boring.
- ii) For each ground water monitoring well installed pursuant to paragraph 1 of this Task, Sinclair shall submit to EPA all field installation and development notes, a well completion diagram, the information given in Table I-4, and the surveyed location and elevation within thirty (30) calendar days of installation of the last ground water monitoring well.
- iii) Within sixty (60) calendar days of the effective date of the Order, Sinclair shall submit to EPA the ground water sampling and analysis plan required by paragraph 9 of this Task.
- iv) Within sixty (60) calendar days of the effective date of the Order, Sinclair shall submit to EPA topographic maps with a scale of one inch equals to 100 feet and having a contour interval of five feet for Sinclair property south of the North Platte River. At a minimum, these map(s) shall show all known solid waste management areas, surface water bodies, all ground water monitoring wells, and piezometers (with labels), pipelines, and the property boundaries.
- v) Within forty-five (45) calendar days after obtaining the soil vapor and ground water samples specified by paragraphs 11 and 12 of this Task, Sinclair shall submit all analytical results to EPA.
- vi) Within fifteen (15) calendar days after determining the ground water elevations in all wells and the thickness of any immiscible layers required by paragraph 13 of this Task,

Sinclair shall submit all such data to EPA. The data shall be displayed in tabular form and on contour maps.

Task 2

The purpose of this Task is to ensure that Sinclair continues to operate the hydrocarbon recovery system that is present between the API ponds and the North Platte River, and which is currently operated under an existing State permit. In addition, the effectiveness of the existing hydrocarbon recovery system shall be evaluated to determine if the system is eliminating the release of hydrocarbon or contaminated ground water into the North Platte River. The operation of this hydrocarbon recovery system, including any modifications, must be in accordance with State requirements. To accomplish this Task Sinclair shall perform the following activities:

1. Sinclair shall submit to EPA within thirty (30) calendar days of the effective date of the Order, all information on the design and operation of the existing hydrocarbon recovery system. This shall include, but not be limited to:
 - A. All design reports, specifications, bid packages, etc.;
 - B. As built information;
 - C. Process flow diagrams;
 - D. Production records (water and hydrocarbon);
 - E. All monitoring results (chemical or hydraulic; and
 - F. Copies of all correspondence and reports submitted to the State of Wyoming by Sinclair, or its contractors concerning the operator, design or monitoring of the hydrocarbon recovery system.
2. Sinclair shall contract with a professional engineer and/or a hydrogeologist with experience in the field of hydrocarbon recovery system, that is independent from Sinclair, to evaluate the effectiveness of the existing hydrocarbon recovery system in eliminating the release of hydrocarbon or contaminated ground water into the North Platte River. Within sixty (60) calendar days of the effective date of the Order, Sinclair shall submit to EPA the following:
 - a) The name of the person or persons performing the evaluation,
 - b) The qualifications of the person or persons performing the evaluation,

- c) A signed statement by Sinclair certifying that the individuals contracted are in no way currently or historically connected to Sinclair or parent companies, beside fees paid to perform the required work of this Task.
3. Within sixty (60) calendar days after EPA approval of the person or persons (engineers or hydrogeologists) retained by Sinclair to evaluate the effectiveness of the hydrocarbon recovery system, the independent engineer or hydrogeologists report on the system shall be submitted to EPA and shall contain the following:
- a) A signed statement by the person or persons who prepared the report stating that they agree with the conclusions, interpretations, and recommendations contained within the report.
 - b) A list of recommendations, if any, for modifying the design, monitoring or operation of the system to ensure the hydrocarbon recovery system eliminates releases of hydrocarbons and contaminated ground water into the North Platte River.
 - c) A compilation of site specific data used to evaluate the effectiveness of the system.
 - d) Detailed justification of any assumptions employed.
 - e) A compilation of missing information that is needed to fully evaluate the effectiveness of the system.
4. Within forty-five (45) calendar days after submittal of the report described in paragraph 3 above to EPA, Sinclair shall submit the following documents to EPA for approval, if applicable:
- a) Work plan for gathering all missing information necessary to completely evaluate the effectiveness of the hydrocarbon recovery system as identified in the report described in paragraph 3 of this Task, and which shall include schedules for performing all necessary tasks.
 - b) Work plan for the design to correct operational deficiencies of the hydrocarbon recovery system as identified in the report described in paragraph 3 of this Task, and which shall include a schedule for performing all necessary tasks.
 - c) An Operations and Maintenance (OM) Manual for the hydrocarbon recovery system that eliminates releases of

hydrocarbon or contaminated ground water into the North Platte River. The OM Manual shall fully describe detailed operational aspects, equipment, and preventive maintenance activities. The OM Manual shall contain:

- 1) Users' Guide
 - 2) System Overview
 - 3) Operation and Managerial Responsibilities
 - 4) Monitoring and Inspection Plans
 - 5) Sampling Procedures
 - 6) Analytical Procedures
 - 7) Water Management and Treatment Operations and Maintenance
 - 8) Utilities
 - 9) Recordkeeping and Reporting Procedures
 - 10) Contingency Plan for System Upsets
 - 11) Health and Safety Plan
5. Within thirty (30) calendar days after EPA approval or modification of any of the work plans referenced in paragraph 4 of this Task, Sinclair shall implement the work plan according to the tasks and schedules contained in the approved work plan(s).
6. At all times, the Facility must operate the existing hydrocarbon recovery system according to State requirements including the existing State-issued permit for the hydrocarbon recovery system.

Task 3

The purpose of this task is to mitigate movement of contaminated ground water and soil vapor which may be attributed to Sinclair's facility (LARCO) into the Brookhurst subdivision and also to mitigate the plume(s) of ground water and soil vapor contamination that presently exists in the Brookhurst subdivision due to release(s) that may be attributed to LARCO. To accomplish this task Sinclair shall perform the following activities:

1. Within sixty (60) calendar days of the effective date of the Order, Sinclair shall submit to EPA, for approval, a draft interim measure design for a ground water and soil vapor withdrawal and treatment system, that when implemented shall mitigate the migration of contaminated ground water which may be attributed to Sinclair's LARCO facility into the Brookhurst subdivision and shall mitigate existing ground water and soil vapor contamination that has entered the Brookhurst subdivision from releases that may be attributed to Sinclair's LARCO facility. The emphasis for the interim measures recovery system should focus on contaminated soil vapor and free-floating hydrocarbons. The system shall be designed and operated in such a manner so as not to cause the

movement of other contaminant plumes present in the Brookhurst subdivision into areas that have no contamination or lower levels of contamination. Sinclair shall develop clear and comprehensive design plans and specifications which shall include but are not limited to the following:

A. Design Plans and Specifications

- i) Discussion of the design strategy and the design basis, including:
 - a. Compliance with all applicable or relevant environmental and public health standards; and
 - b. Minimization of environmental and public impacts.
- ii) Discussion of the technical factors of importance including:
 - a. Use of currently accepted environmental control measures and technology;
 - b. The constructability of the design; and
 - c. Use of currently acceptable construction practices and techniques.
- iii) Description of assumptions made and detailed justification of these assumptions;
- iv) Discussion of the possible sources of error and references to possible operation and maintenance problems;
- v) Detailed drawings of the proposed design including:
 - a. Qualitative flow sheets; and
 - b. Quantitative flow sheets.
- vi) Tables listing equipment and specifications;
- vii) Tables giving material and energy balances;
- viii) Appendices including:
 - a. Sample calculations (one example presented and explained clearly for significant or unique design calculations);
 - b. Derivation of equations essential to understanding the report; and
 - c. Results of laboratory or field tests.

B. Operation and Maintenance Plan

- i) Description of normal operation and maintenance (O&M):
 - a. Description of tasks for operation;
 - b. Description of tasks for maintenance;
 - c. Description of prescribed treatment or operation conditions; and
 - d. Schedule showing frequency of each O&M task.
- ii) Description of potential operating problems:
 - a. Description and analysis of potential operation problems;
 - b. Sources of information regarding problems; and
 - c. Common and/or anticipated remedies.
- iii) Description of routine monitoring and laboratory testing:
 - a. Description of monitoring tasks;
 - b. Description of required laboratory tests and their interpretation;
 - c. Required QA/QC; and
 - d. Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.
- iv) Description of alternate O&M:
 - a. Should systems fail, alternate procedures to prevent undue hazard; and
 - b. Analysis of vulnerability and additional resource requirements should a failure occur.
- v) Safety plan:
 - a. Description of precautions of necessary equipment, etc., for site personnel; and
 - b. Safety tasks required in event of systems failure.
- vi) Description of equipment; and
 - a. Equipment identification;
 - b. Installation of monitoring components;
 - c. Maintenance of site equipment; and
 - d. Replacement schedule for equipment and installed components.

vii) Records and reporting mechanisms required:

- a. Daily operating logs;
- b. Laboratory records;
- c. Records for operating costs;
- d. Mechanism for reporting emergencies;
- e. Personnel and maintenance records; and
- f. Monthly/annual reports to State agencies.

C. Cost Estimate

Sinclair shall develop cost estimates for the purpose of assuring that the facility has the financial resources necessary to construct and implement the interim measure. The cost estimate shall include capital, operation and maintenance costs.

D. Project Schedule

Sinclair shall develop a Project Schedule for construction and implementation of the interim measure or measures which identifies timing for initiation and completion of all critical path tasks. Sinclair shall specifically identify dates for completion of the project and major interim milestones.

E. Construction Quality Assurance Objectives

Sinclair shall identify and document the objectives and framework for the development of a construction quality assurance program including, but not limited to the following: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; and documentation.

F. Health and Safety Plan

- i) Sinclair shall prepare a Health and Safety Plan to address the activities to be performed at the facility to implement the interim measures.
- ii) Within thirty (30) calendar days after receiving written EPA comments on the Draft Interim Measures Design Sinclair shall submit a revised Final Interim Measures Design Report to EPA that addresses all of EPA comments.

- iii) Within thirty (30) calendar days of submittal of the Final Interim Measures Design Report to EPA, Sinclair shall submit to EPA for modification or approval a Draft Construction Quality Assurance Plan (CQA). The CQA shall include the elements listed below:

a. Responsibility and Authority

The responsibility and authority of all organizations (i.e., technical consultants, construction firms, etc.) and key personnel involved in the construction of the interim measure shall be described fully in the CQA plan. Sinclair must identify a CQA officer and the necessary supporting inspection staff.

b. Construction Quality Assurance Personnel Qualifications

The qualifications of the CQA officer and supporting inspection personnel shall be presented in the CQA plan to demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.

c. Inspection Activities

The observations and tests that will be used to monitor the construction and/or installation of the components of the interim measure(s) shall be summarized in the CQA plan. The plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with all environmental requirements and include, but not be limited to air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. The inspection should also ensure compliance with all health and safety procedures. In addition to oversight inspections, Sinclair shall conduct the following activities:

i) Preconstruction inspection and meeting

Sinclair shall conduct a preconstruction inspection and meeting to:

- a. Review methods for documenting and reporting inspection data;
- b. Review methods for distributing and storing documents and reports;

- c. Review work area security and safety protocol;
- d. Discuss any appropriate modifications of the construction quality assurance plan to ensure that site-specific considerations are addressed; and
- e. Conduct a site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

The preconstruction inspection and meeting shall be documented by a designated person and minutes should be transmitted to all parties.

ii) Prefinal inspection

Upon preliminary project completion Sinclair shall notify EPA for the purposes of conducting a prefinal inspection. The prefinal inspection will consist of a walk-through inspection of the entire project site. The inspection is to determine whether the project is complete and consistent with the contract documents and the EPA approved interim measure. Any outstanding construction items discovered during the inspection will be identified and noted. Additionally, treatment equipment will be operationally tested by the Sinclair. Sinclair will certify that the equipment has performed to meet the purpose and intent of the specifications. Retesting will be completed where deficiencies are revealed. The prefinal inspection report should outline the outstanding construction items, actions required to resolve items, completion date for these items, and date for final inspection.

iii) Final inspection

Upon completion of any outstanding construction items, Sinclair shall notify EPA for the purposes of conducting a final inspection. The final inspection will consist of a walk-through inspection of the project

site. The prefinal inspection report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

d. Sampling Requirements

The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for correcting problems as addressed in the project specifications should be presented in the CQA plan.

e. Documentation

Reporting requirements for CQA activities shall be described in detail in the CQA plan. This should include such items as daily summary reports, inspection data sheets, problem identification and interim measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records also should be presented in the CQA plan.

2. Within thirty (30) calendar days after Sinclair receives EPA written comments on the draft CQA plan, Sinclair shall submit a final CQA plan that addresses all EPA comments. Within thirty (30) calendar days after submission of the final CQA plan to EPA, Sinclair shall begin construction of the ground water and soil vapor withdrawal and treatment system and shall follow the requirements and schedules of the Final Interim Design Plan and the Final CQA Plan.
3. With thirty (30) calendar days of the prefinal inspection described in the final CQA plan, Sinclair shall submit to EPA the pre-final inspection report which is described in the CQA work plan requirements.
4. Within fifteen (15) calendar days after the Final Construction Inspection, Sinclair shall begin operations of the ground water and soil vapor withdrawal and treatment system according to the requirements given in the Final Interim Measure Design Report.
5. Sinclair shall at a minimum provide the EPA with signed, monthly, progress reports during the design and construction phases and quarterly progress reports for operation and maintenance activities containing:

- a. A description and estimate of the percentage of the Interim Measure Implementation (IMI) completed;
- b. Summaries of all findings;
- c. Summaries of all changes made in the IMI during the reporting period;
- d. Summaries of all contacts with representatives of the local community, public interest groups, or State government during the reporting period;
- e. Summaries of all problems or potential problems encountered during the reporting period;
- f. Actions being taken to rectify problems;
- g. Changes in personnel during the reporting period;
- h. Projected work for the next reporting period; and
- i. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

TABLE I-1

ANALYTICAL CONSTITUENTS FOR GROUND-WATER SAMPLES

Analytical techniques for the following parameters must follow the requirements of SW-846, current edition.

1. Parameters Establishing Ground Water Quality:

Chloride
Iron, total
Manganese, total
Sodium
Sulfate
pH (4 replicates)
Temperature
Specific Conductance (4 replicates)
Eh (4 replicates)

2. Other Major Ions:

Calcium
Magnesium
Potassium
Bicarbonate
Carbonate

3. Reactive-Cyanide and Sulfide

4. Metals (Total and Dissolved):

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Lead
Mercury
Nickel
Selenium
Vanadium

TABLE I-1 (continued)

5. Volatile Organics:

Acrolein
 Acrylonitrile
 Benzene
 Bis (chloromethyl) ether
 Bromoform
 Carbon disulfide
 Carbon tetrachloride
 Chlorobenzene
 Chlorodibromomethane
 Chloroethane
 Chloroform
 Dichlorobromomethane Dichlorodifluoromethane
 1,1-Dichloroethane
 1,2-Dichloroethane
 1,1-Dichloroethylene
 1,2-Dichloropropane
 1,3-Dichloropropylene
 1,4-Dioxine
 Ethylbenzene
 Ethylene dibromide
 Methylbromide
 Methylchloride
 Methyl ethyl ketone
 Methylene chloride
 Styrene
 1,1,2,2-Tetrachloroethane Tetrachloroethylene
 Toluene
 1,2-trans-Dichloroethylene 1,1,1- Trichloroethane 1,1,2-
 Trichloroethane
 Trichloroethylene
 Trichlorofluoromethane
 Vinyl chloride
 Xylenes (m, o, and p)

TABLE I-1 (continued)

6. Base/Neutral Compounds:

Acenaphthene
 Acenaphthylene
 Anthracene
 Benzidene
 Benzo (a) anthracene
 Benzo (b) fluoranthene
 Benzo (k) fluoranthene
 3, 4-Benzofluoranthene
 Benzo (ghi) perylene
 Benzo (a) pyrene
 Bis (2-chloroethoxy) methane
 Bis (2-chloroethyl) ether
 Bis (2-chloroisopropyl) ether
 Bis (2-ethylhexyl) phthalate
 4-Bromophenyl phenyl ether
 Butyl benzyl phthalate
 2-Chloronaphthalene
 4-Chlorophenyl phenyl ether
 Chrysene
 Dibenzo (a, h) acridine
 Dibenzo (a, h) anthracene
 Di (n) butyl phthalate
 1, 2-Dichlorobenzene
 1, 3-Dichlorobenzene
 1, 4-Dichlorobenzene
 3, 3-Dichlorobenzidine
 Diethyl phthalate
 Dimethyl phthalate
 7, 12-Dimethylbenzo (a) anthracene
 Di (n) octyl phthalate
 2, 4-Dinitrotoluene
 2, 6-Dinitrotoluene
 1, 2-Diphenylhydrazine
 Fluoranthene
 Fluorene
 Hexachlorobenzene
 Hexachlorobutadiene Hexachlorocyclopentadiene
 Hexachloroethane

TABLE I-1 (continued)

Indene
Indeno (1, 2, 3-cd) Pyrene
Isophorone
Methyl chrysene
1-Methylnaphthalene
Naphthalene
Nitrobenzene
N-Nitrosodimethylamine N-Nitrosodi-n- propylamine N-
Nitrosodiphenylamine
Phenanthrene
Pyrene
Pyridine
Quinoline
1, 2, 4-Trichlorobenzene

7. Acid Compounds:

Benzenethiol
2-Chlorophenol
2, 4-Dimethylphenol
4, 6-Dinitro-o-cresol
2, 4-Dinitrophenol
2-Nitrophenol
4-Nitrophenol
p-Chloro-m-cresol
Pentachlorophenol
Phenol
2, 4, 6-Trichlorophenol
2-methyl phenol
4-methyl phenol

8. Other Organics:

Cyclohexane
2-Methylnaphthalene

TABLE I-2

ANALYTICAL CONSTITUENTS FOR IMMISCIBLE PHASE
SAMPLES FROM GROUND-WATER

Parameter (Analytical techniques must follow SW-846 3rd Edition)

EP Toxicity
Ignitability
Polynuclear Aromatic Hydrocarbons

Metals (Total):

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Lead
Mercury
Nickel
Selenium
Vanadium

Volatile Organics:

Acrolein
Acrylonitrile
Benzene
Bis (chloromethyl) ether
Bromoform
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloroform
Dichlorobromomethane
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
1,2-Dichloropropane
1,3-Dichloropropylene
1,4-Dioxine
Ethylbenzene
Ethylene dibromide
Methylbromide

TABLE I-2 (Continued)

ANALYTICAL CONSTITUENTS FOR IMMISCIBLE PHASE
SAMPLES FROM GROUND-WATER

Parameter (Analytical techniques must follow SW-846 3rd Edition)

Methylchloride
Methyl ethyl ketone
Methylene chloride
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Toluene
1,2-trans-Dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Trichlorofluoromethane
Vinyl chloride
Xylenes (m, o, and p)

Base/Neutral Compounds:

Acenaphthene
Acenaphthylene
Anthracene
Benzidene
Benzo (a) anthracene
Benzo (b) fluoranthene
Benzo (k) fluoranthene
3, 4-Benzofluoranthene
Benzo (ghi) perylene
Benzo (a) pyrene
Bis (2-chloroethoxy) methane
Bis (2-chloroethyl) ether
Bis (2-chloroisopropyl) ether
Bis (2-ethylhexyl) phthalate
4-Bromophenyl phenyl ether
Butyl benzyl phthalate
2-Chloronaphthalene
4-Chlorophenyl phenyl ether
Chrysene
Dibenzo (a, h) acridine
Dibenzo (a, h) anthracene
Di (n) butyl phthalate
1, 2-Dichlorobenzene
1, 3-Dichlorobenzene
1, 4-Dichlorobenzene

TABLE I-2 (Continued)

ANALYTICAL CONSTITUENTS FOR IMMISCIBLE PHASE
SAMPLES FROM GROUND-WATER

Parameter (Analytical techniques must follow SW-846 3rd Edition)

3, 3-Dichlorobenzidine
Diethyl phthalate
Dimethyl phthalate
7, 12-Dimethylbenzo (a) anthracene
Di (n) octyl phthalate
2, 4-Dinitrotoluene
2, 6-Dinitrotoluene
1, 2-Diphenylhydrazine
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indene
Indeno (1, 2, 3-cd) Pyrene
Isophorone
Methyl chrysene
1-Methylnaphthalene
Naphthalene
Nitrobenzene
N-Nitrosodimethylamine
N-Nitrosodi-n-propylamine
N-Nitrosodiphenylamine
Phenanthrene
Pyrene
Pyridine
Quinoline
1, 2, 4-Trichlorobenzene

Acid Compounds:

Benzenethiol
2-Chlorophenol
2, 4-Dimethylphenol
4, 6-Dinitro-o-cresol
2, 4-Dinitrophenol
2-Nitrophenol
4-Nitrophenol
p-Chloro-m-cresol
Pentachlorophenol
Phenol

TABLE I-2 (Continued)

ANALYTICAL CONSTITUENTS FOR IMMISCIBLE PHASE
SAMPLES FROM GROUND-WATER

Parameter (Analytical techniques must follow SW-846 3rd Edition)

2, 4, 6-Trichlorophenol
2-methyl phenol
4-methyl phenol

Other Organics:

Cyclohexane
2-Methylnaphthalene

TABLE I-3

FIELD BORING LOG INFORMATION

General

- Project name
- Hole name/number
- Date started and finished
- Geologist's name
- Driller's name
- Sheet number
- Hole location; map and elevation
- Rig size; bit size/auger size
- Petrologic lithologic classification used (Wentworth, unified soil classification system)
- Core sampling method and equipment

Information Columns

- Depth
- Sample location/number
- Blow counts and advance rate
- Percent sample recovery
- Narrative description
- Depth to saturation

Narrative Description

--Geologic Observations:

- Soil/rock type
- Color and stain
- Gross petrology
- Friability
- Moisture Content
- Degree of weathering
- Presence of carbonate
- Fractures
- Solution cavities
- Bedding
- Discontinuities; e.g., foliation
- Water-bearing zones
- Formational strike and dip
- Fossils
- Depositional structures
- Organic content
- Odor
- Suspected contaminant

TABLE I-3 (continued)

FIELD BORING LOG INFORMATION

--Drilling Observations:

- Loss of circulation
- Advance rates
- Rig chatter
- Water levels
- Amount of air used, air pressure
- Drilling difficulties
- Changes in drilling method or equipment
- Readings from detective equipment, if any
- Amount of water yield or loss during drilling at different depths
- Amounts and types of any liquids used
- Running sands
- Caving/hole stability

--Other remarks:

- Equipment failures
- Possible contamination
- Deviations from drilling plan
- Weather

TABLE I-4

DOCUMENTATION OF WELL DESIGN AND CONSTRUCTION

- Date/time of construction
- Drilling method and drilling fluid used
- Well location (+ 0.5 ft.)
- Bore hole diameter and well casing diameter
- Well depth (+ 0.1 ft.)
- Drilling and lithologic logs
- Casing materials
- Screen materials and design
- Casing and screen joint type
- Screen slot size/length
- Filter pack material/size, grain analysis (D10)
- Filter pack volume calculations
- Filter pack placement method
- Sealant materials (percent bentonite type)
- Sealant volume
- Sealant placement method
- Surface seal design/construction
- Well development procedure
- Type of protective well cap
- Ground surface elevation (+ 0.01 ft.)
- Surveyor's pin elevation (+ 0.01 ft.) on concrete apron
- Top of monitoring well casing elevation (+0.01 ft.)
- Top of protective steel casing elevation (+0.01 ft.)
- Detailed drawing of well (include dimensions)
- Borehole abandonment procedures

ATTACHMENT II

SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION (RFI) AT LITTLE AMERICA REFINING COMPANY, INC. (LARCO) EVANSVILLE, WYOMING

PURPOSE

The purpose of this RCRA Facility Investigation (RFI) is to determine the nature and extent of releases of hazardous waste or constituents from regulated units, solid waste management units, and other source areas at the facility to surrounding on-site and off-site areas including Brookhurst and affected areas on the north side of the North Platte River and to gather all necessary data to support the Corrective Measures Study outlined in Attachment III. Sinclair shall furnish all personnel, materials, and services necessary for, or incidental to, performing this RCRA Facility Investigation.

SCOPE

The RCRA Facility Investigation consists of seven tasks:

Task I: Description of Current Conditions

- A. Facility Background
- B. Nature and Extent of Contamination

Task II: Pre-Investigation Evaluation of Corrective Measure Technologies

Task III: RFI Workplan Requirements

- A. Project Management Plan
- B. Data Collection Quality Assurance Plan
- C. Data Management Plan
- D. Health and Safety Plan
- E. Community Relations Plan

Task IV: Facility Investigation

- A. Environmental Setting
- B. Source Characterization
- C. Contamination Characterization
- D. Potential Receptor Identification

Task V: Investigation Analysis

- A. Data Analysis
- B. Protection Standards

Task VI: Laboratory and Bench-Scale Studies

Task VII: Reports

- A. Progress Reports
- B. RCRA Facility Investigation Reports

TASK I: DESCRIPTION OF CURRENT CONDITIONS

Sinclair shall submit for EPA approval a report providing the background information pertinent to the facility, contamination and interim measures as set forth below. The data gathered during any previous investigations or inspections and other relevant data shall be included.

1. Map(s) depicting the following:
 - a. General geographic location;
 - b. Property lines, with the owners of all adjacent property clearly indicated;
 - c. Topography and surface drainage (with a contour interval of five feet and a scale of 1 inch = 100 feet) depicting all waterways, wetlands, floodplains, water features, drainage patterns, and surface-water containment areas;
 - d. All tanks, buildings, utilities, paved areas, easements, rights-of-way, pipeline, and other features;
 - e. All solid or hazardous waste treatment, storage or disposal areas including all solid waste management units, active after November 19, 1980;
 - f. All known past solid or hazardous waste treatment, storage or disposal areas including solid waste management units regardless of whether they were active on November 19, 1980;
 - g. All known past or present product and waste underground tanks or piping;
 - h. Surrounding land uses (residential, commercial, agricultural, recreational); and

- i. The location of all production and ground water monitoring wells. These wells shall be clearly labeled and ground and top of casing elevations and construction details included (these elevations and details may be included as an attachment).

All maps shall be consistent with the requirements set forth in 40 CFR Section 270.14 and be of sufficient detail and accuracy to locate and report all current and future work performed at the site;

2. A history and description of ownership and operation, solid and hazardous waste generation, treatment, storage, and disposal activities at the facility;
3. Approximate dates or periods of past product and waste spills, identification of the materials spilled, the amount spilled, the location where spilled, and a description of the response actions conducted (local, state and federal response units or private parties), including any inspection reports or technical reports generated as a result of the response; and
4. A summary of past permits requested and/or received, any enforcement actions and their subsequent responses and a list of documents and studies prepared for the facility.

B. Nature, Extent and Rate of Migration of Contamination

Sinclair shall prepare and submit for EPA approval a preliminary report describing the existing information on the nature and extent of contamination.

1. Sinclair's report shall summarize all possible source areas of contamination. This, at minimum, should include all regulated units, solid waste management units, spill areas, and other suspected source areas of contamination. For each area, Sinclair shall identify the following:
 - a. Location of unit/area (which shall be depicted on a facility map);
 - b. Quantities of solid and hazardous wastes;
 - c. Hazardous waste or constituents, to the extent known; and
 - d. Identification of areas where additional information is necessary.

2. Sinclair shall prepare an assessment and description of the existing degree rate and extent of migration of contamination. This should include:
 - a. Available monitoring data and qualitative information on locations and levels of contamination at the facility;
 - b. All potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, hydrogeochemistry, water quality, meteorology, and air quality; and
 - c. The potential impact(s) on human health and the environment, including demography, ground water and surface water use, and land use.

TASK II: PRE-INVESTIGATION EVALUATION OF CORRECTIVE MEASURE TECHNOLOGIES

Prior to starting the facility investigation, Sinclair shall submit to EPA a report that identifies the potential corrective measure technologies that may be used on-site or off-site for the containment, treatment, remediation, and/or disposal of contamination. This report shall also identify any field data that needs to be collected in the facility investigation to facilitate the evaluation and selection of the final corrective measure or measures (e.g., compatibility of waste and construction materials, information to evaluate effectiveness, treatability of wastes, etc.)

TASK III: RFI WORKPLAN REQUIREMENTS

Sinclair shall prepare a RCRA Facility Investigation (RI) Workplan. This RFI Workplan shall include the development of several plans, which shall be prepared concurrently. During the RCRA Facility Investigation, it may be necessary to revise the RFI Workplan to increase or decrease the detail of information collected to accommodate the facility specific situation. The RFI Workplan includes the following:

A. Project Management Plan

Sinclair shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.

B. Data Collection Quality Assurance Plan

Sinclair shall prepare a plan to document all monitoring procedures: sampling, field measurements and sample analysis performed during the investigation to characterize the environmental setting, source, and contamination, so as to ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented.

1. Data Collection Strategy

The strategy section of the Data Collection Quality Assurance Plan shall include but not be limited to the following:

- a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;
- b. Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;
- c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition. Examples of factors which shall be considered and discussed include:
 - i) Environmental conditions at the time of sampling;
 - ii) Number of sampling points;
 - iii) Representativeness of selected media; and
 - iv) Representativeness of selected analytical parameters.
- d. Description of the measures to be taken to assure that the following data sets can be compared to each other:
 - i) RFI data generated by Sinclair over some time period;
 - ii) RFI data generated by an outside laboratory or consultant versus data generated by Sinclair;

- iii) Data generated by separate consultants or laboratories; and
- iv) Data generated by an outside consultant or laboratory over some time period.
- e. Details relating to the schedule and information to be provided in quality assurance reports. The reports should include but not be limited to:
 - i) Periodic assessment of measurement data accuracy, precision, and completeness;
 - ii) Results of performance audits;
 - iii) Results of system audits;
 - iv) Significant quality assurance problems and recommended solutions; and
 - v) Resolutions of previously stated problems.

2. Sampling

The Sampling section of the Data Collection Quality Assurance Plan shall discuss:

- a. Selecting appropriate sampling locations, depths, etc.;
- b. Providing a statistically sufficient number of sampling sites;
- c. Measuring all necessary ancillary data;
- d. Determining conditions under which sampling should be conducted;
- e. Determining which media are to be sampled (e.g., ground water, air, soil, sediment, etc.);
- f. Determining which parameters are to be measured and where;
- g. Selecting the frequency of sampling and length of sampling period;
- h. Selecting the types of sample (e.g., composites vs. grabs) and number of samples to be collected;

- i. Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;
- j. Documenting field sampling operations and procedures, including:
 - i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, and adsorbing reagents);
 - ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;
 - iii) Documentation of specific sample preservation method;
 - iv) Calibration of field devices;
 - v) Collection of replicate samples;
 - vi) Submission of field-biased blanks, where appropriate;
 - vii) Potential interferences present at the facility;
 - viii) Construction materials and techniques, associated with monitoring wells and piezometers;
 - ix) Field equipment listing and sample containers;
 - x) Sampling order; and
 - xi) Decontamination procedures.
- k. Selecting appropriate sample containers;
- l. Sample preservation; and
- m. Chain-of-custody, including:
 - i) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment; and

- ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Field Measurements

The Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

- a. Selecting appropriate field measurement locations, depth, etc.;
- b. Providing a statistically sufficient number of field measurements;
- c. Measuring all necessary ancillary data;
- d. Determining conditions under which field measurement should be conducted;
- e. Determining which media are to be addressed by appropriate field measurements (e.g., ground water, air, soil, sediment, etc.);
- f. Determining which parameters are to be measured and where;
- g. Selecting the frequency of field measurement and length of field measurements period; and
- h. Documenting field measurement and procedures, including:
 - i) Procedures and forms for recording raw data and the exact location, time and facility-specific considerations associated with the data acquisition;
 - ii) Calibration of field devices;
 - iii) Collection of replicate measurements;
 - iv) Submission of field-biased blanks, where appropriate;
 - v) Potential interferences present at the facility;
 - vi) Construction materials and techniques associated with monitoring wells and piezometers use to collect field data;

- vii) Field equipment listing;
- viii) Order in which field measurements were made;
and
- ix) Decontamination procedures.

4. Sample analysis

The Sample analysis section of the Data Collection Quality Assurance Plan shall specify the following:

- a. Chain-of-custody procedures, including:
 - i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;
 - ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and
 - iii) Specification of laboratory sample custody procedures for sample handling, storage, and dispersment for analysis.
- b. Sample storage procedures and storage times;
- c. Sample preparation methods;
- d. Analytical procedures, including:
 - i) Scope and application of the procedure;
 - ii) Sample matrix;
 - iii) Potential interferences;
 - iv) Precision and accuracy of the methodology; and
 - v) Method detection limits.
- e. Calibration procedures and frequency;
- f. Data reduction, validation and reporting;
- g. Internal quality control checks, laboratory performance and systems audits and frequency, including:

- i) Method blank(s);
 - ii) Laboratory control sample(s);
 - iii) Calibration check sample(s);
 - iv) Replicate sample(s);
 - v) Matrix-spiked sample(s);
 - vi) "Blind" quality control sample(s);
 - vii) Control charts;
 - viii) Surrogate samples;
 - ix) Zero and span gases;
and
 - x) Reagent quality control checks.
- h. Preventive maintenance procedures and schedules;
- i. Corrective action (for laboratory problems);
and
- j. Turnaround time.

C. Data Management Plan

Sinclair shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedure, project file requirements, and project related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

- a. Unique sample or field measurement code;
- b. Sampling or field measurement location and sample or measurement type;
- c. Sampling or field measurement raw data;

- d. Laboratory analysis ID number;
- e. Property or component measured; and
- f. Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

- a. Unsorted (raw) data;
- b. Results for each medium, or for each constituent monitored;
- c. Data reduction for statistical analysis;
- d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and
- e. Summary data.

3. Graphical Displays

The following shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

- a. Display sampling location and sampling grid;
- b. Indicate boundaries of sampling area, and areas where more data are required;
- c. Display levels of contamination at each sampling location;
- d. Display geographical extent of contamination;
- e. Display contamination levels, averages, and maxima;
- f. Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and
- g. Indicate features affecting intramedia transport and show potential receptors.

D. Health and Safety Plan

Sinclair shall prepare a facility specific Health and Safety Plan.

1. Major elements of the Health and Safety Plan shall include:
 - a. Facility description including availability of resources such as roads, water supply, electricity, and telephone service;
 - b. Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted;
 - c. List key personnel and alternatives responsible for site safety, responses operations, and for protection of public health;
 - d. Delineate work area;
 - e. Describe levels of protection to be worn by personnel in work area (and justification);
 - f. Establish procedures to control site access;
2. The Facility Health and Safety Plan shall be consistent with:
 - a. NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);
 - b. EPA Order 1440.1 - Respiratory Protection;
 - c. EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;
 - d. Facility Contingency Plan;
 - e. EPA Standard Operating Safety Guide (1984);
 - f. OSHA regulations particularly in 29 CFR 1910 and 1926; including Interim Final Rule (29 CFR Part 1910) published in the December 19, 1986, Federal Register;
 - g. State and local regulations; and
 - h. Other EPA guidance as provided.

E. Community Relations Plan

Sinclair shall prepare a plan for the dissemination of information to the public regarding investigation activities and results.

TASK IV: FACILITY INVESTIGATION

Sinclair shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source(s) (Source Characterization); define the degree and extent of contamination (Contamination Characterization); and identify actual or potential receptors.

The investigations should result in data of adequate technical quality to support the development and evaluation of the corrective measure alternative or alternatives during the Corrective Measures Study. Data collected during the implementation of the Section 7003 Order issued by EPA on April 19, 1988, may be included as part of this investigation if it is of adequate technical quality.

The site investigation activities shall follow the plans set forth in Task III. All sampling and analysis shall be conducted in accordance with the Data Collection Quality Assurance Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting

Sinclair shall collect information to supplement and verify existing information on the environmental setting at the facility. Sinclair shall characterize the following:

1. Hydrogeology

Sinclair shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

- a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting ground water flow beneath the facility, including:
 - i) Regional and facility specific stratigraphy; description of strata including strike and dip, identification of stratigraphic contacts;

- ii) Structural geology: description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);
 - iii) Depositional history;
 - iv) Identification and characterization of areas and amounts of recharge and discharge;
 - v) Regional and facility specific ground water flow patterns; and
 - vi) Characterization of seasonal and temporal variations in the ground water flow regime.
- b. An analysis of any topographic features that might influence the ground water flow system. (Note: Stereographic analysis of aerial photographs may aid in this analysis.)
- c. Based on field data, test, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:
 - i) Hydraulic conductivity and porosity (total and effective);
 - ii) Lithology, grain size, sorting, degree of cementation;
 - iii) An interpretation of hydraulic interconnections between saturated zones; and
 - iv) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content etc.).
- d. Based on field studies and cores, structural and hydrogeologic cross sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways identifying:
 - i) Sand and gravel deposits in unconsolidated deposits;

- ii) Zones of fracturing or channeling in consolidated or unconsolidated deposits;
 - iii) Zones of higher permeability or low permeability that might direct and restrict the flow of contaminants;
 - iv) The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs; and
 - v) Water-bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.
- e. Based on data obtained from ground-water monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source(s), a representative description of water level or fluid pressure monitoring including:
 - i) Water-level contour and/or potentiometric maps;
 - ii) Hydrologic cross sections showing vertical gradients;
 - iii) The flow system, including the vertical and horizontal components of flow; and
 - iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.
- f. A description of manmade influences that may affect the hydrogeology of the site, identifying:
 - i) Active and inactive local water-supply and production wells with an approximate schedule of pumping; and
 - ii) Manmade hydraulic structures (pipelines, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention areas, etc.).

2. Soils

Sinclair shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). Such characterization shall include but not be limited to, the following information:

- a. SCS soil classification;
- b. Surface soil distribution;
- c. Soil profile, including ASTM classification of soils;
- d. Transects of soil stratigraphy;
- e. Hydraulic conductivity (saturated and unsaturated);
- f. Relative permeability;
- g. Bulk density;
- h. Porosity;
- i. Soil sorptive capacity;
- j. Cation exchange capacity (CEC);
- k. Soil organic content;
- l. Soil pH;
- m. Particle size distribution;
- n. Depth of water table;
- o. Moisture content;
- p. Effect of stratification on unsaturated flow;
- q. Infiltration
- r. Evapotranspiration;
- s. Storage capacity;
- t. Vertical flow rate;
- u. Mineral content; and
- v. Redox potential (Eh)

3. Surface Water and Sediment

Sinclair shall conduct a program to characterize the surface - water bodies in the vicinity of the facility, including the North Platte River. Such characterization shall include, but not be limited to, the following activities and information:

- a. Description of the temporal and permanent surface-water bodies including:
 - i) For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;
 - ii) For impoundments: location, elevation, surface area, depth, volume, freeboard, and purpose of impoundment;
 - iii) For streams, ditches, drains, swamps and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., 100 year event);
 - iv) Drainage patterns; and
 - v) Evapotranspiration.

- b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients (NH₃, NO₃-/NO₂-, PO₄-3), chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.
- c. Description of sediment characteristics including:
 - i) Deposition area;
 - ii) Thickness profile; and
 - iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)

4. Air

Sinclair shall provide information characterizing the climate in the vicinity of the facility. Such information shall include, but not be limited to:

- a. A description of the following parameters:
 - i) Annual and monthly rainfall averages;
 - ii) Monthly temperature averages and extremes;
 - iii) Wind speed and direction;
 - iv) Relative humidity/dew point;
 - v) Atmospheric pressure;
 - vi) Evaporation data;
 - vii) Development of inversions; and
 - viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.
- b. A description of topographic and manmade features which affect air flow and emission patterns, including:
 - i) Ridges, hills or mountain areas;
 - ii) Canyons or valleys;

- iii) Surface water bodies (e.g. rivers, lakes, bays, etc.);
- iv) Wind breaks and forests; and
- v) Buildings.

B. Source Characterization

Sinclair shall collect analytic data to completely characterize the wastes and the areas where wastes have been placed, collected or removed including: type; quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security, and engineered barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area Characteristics:

- a. Location of unit/disposal area;
- b. Type of unit/disposal area;
- c. Design features;
- d. Operating practices (past and present);
- e. Period of operation;
- f. Age of unit/disposal area;
- g. General physical conditions; and
- h. Method used to close the unit/disposal area

2. Waste Characteristics:

- a. Type of waste placed in the unit;
 - i) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);
 - ii) Quantity; and
 - iii) Chemical composition.
- b. Physical and chemical characteristics;
 - i) Physical form (solid, liquid, gas);
 - ii) Physical description (e.g., powder, oily sludge)
 - iii) Temperature;
 - iv) pH;

- v) General chemical class (e.g., acid, base, solvent);
- vi) Molecular weight;
- vii) Density;
- viii) Boiling point;
- ix) Viscosity;
- x) Solubility in water;
- xi) Cohesiveness of the waste;
- xii) Vapor pressure;
- xiii) Flash point
- c. Migration and dispersal characteristics of the waste;
 - i) Sorption;
 - ii) Biodegradability, bioconcentration, biotransformation;
 - iii) Photodegradation rates;
 - iv) Hydrolysis rates; and
 - v) Chemical transformations.

Sinclair shall document the procedures used in making the above determinations.

C. Contamination Characterization

Sinclair shall collect analytical data on ground water, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility. These data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes. Data shall include time and location of sampling, media sampled, concentrations found, and conditions during sampling, and the identity of the individuals performing the sampling and analysis. Sinclair shall address the following types of contamination at the facility:

1. Ground-water Contamination

Sinclair shall conduct a ground-water investigation to characterize any plumes of contamination at the facility.

This investigation shall at a minimum provide the following information:

- a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;
- b. The horizontal and vertical direction of contamination movement;
- c. The velocity of contaminant movement;
- d. The horizontal and vertical concentration profiles of Appendix IX constituents in the plume(s);
- e. An evaluation of factors influencing the plume movement; and
- f. An extrapolation of future contaminant movement.

Sinclair shall document the procedures used in making the above determination (e.g., well design, well construction, geophysics, modeling, etc.).

2. Soil Contamination

Sinclair shall conduct an investigation to characterize the contamination of the soil and rock units above the water table in the vicinity of the contaminant release. The investigation shall include the following information:

- a. A description of the vertical and horizontal extent of contamination.
- b. A description of contaminant and soil chemical properties within the contaminant source area and plume. This includes contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation.
- c. Specific contaminant concentrations.
- d. The velocity and direction of contaminant movement.
- e. An extrapolation of future contaminant movement.

Sinclair shall document the procedures used in making the above determinations.

3. Surface-Water and Sediment Contamination

Sinclair shall conduct a surface-water investigation to characterize contamination in surface-water bodies resulting from contaminant releases at the facility.

The investigation shall include, but not be limited to, the following information:

- a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;
- b. The horizontal and vertical direction of contaminant movement;
- c. The contaminant velocity;
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;
- e. An extrapolation of future contaminant movement; and
- f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.;

Sinclair shall document the procedures used in making the above determinations.

4. Air Contamination

Sinclair shall conduct an investigation to characterize the particulate and gaseous contaminants released into the atmosphere. This investigation shall provide the following information:

- a. A description of the horizontal and vertical direction and velocity of contaminant movement;
- b. The rate and amount of the release; and
- c. The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

Sinclair shall document the procedures used in making the above determinations.

5. Subsurface Gas Contamination

Sinclair shall conduct an investigation to characterize subsurface gases emitted from buried hazardous waste and hazardous constituents in the ground water. This investigation shall include the following information:

- a. A description of the horizontal and vertical extent of subsurface gases mitigation;
- b. The chemical composition of the gases being emitted;
- c. The rate, amount, and density of the gases being emitted; and
- d. Horizontal and vertical concentration profiles of the subsurface gases emitted.

Sinclair shall document the procedures used in making the above determinations.

D. Potential Receptors

Sinclair shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility, including the Brookhurst residential subdivision. Chemical analysis of biological samples may be needed. Data on observable effects in ecosystems may also be obtained. the following characteristics shall be identified:

1. Local uses and possible future uses of ground water;
 - a. Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and
 - b. Location of ground water users including wells and discharge areas.
2. Local uses and possible future uses of surface waters draining the facility:
 - a. Domestic and municipal (e.g. potable and lawn/gardening watering);
 - b. Recreational (e.g. swimming, fishing);
 - c. Agricultural;
 - d. Industrial; and

- e. Environmental (e.g. fish and wildlife propagation).
- 3. Human use of or access to the facility and adjacent lands, including but not limited to:
 - a. Recreation;
 - b. Hunting;
 - c. Residential;
 - d. Commercial;
 - e. Zoning; and
 - f. Relationship between population locations and prevailing wind direction.
- 4. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.
- 5. A description of the ecology overlying and adjacent to the facility.
- 6. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.

TASK V: INVESTIGATION ANALYSIS

Sinclair shall prepare an analysis and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support the Corrective Measures Study.

A. Data Analysis

Sinclair shall analyze all facility investigation data outlined in Task IV and prepare a report on the type and extent of contamination at the facility including sources and migration pathways. The report shall describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative for the area.

B. Protection Standards

1. Ground-water Protection Standards

For regulated units, Sinclair shall provide information to support the Agency's selection/development of Ground-water Protection Standards for all of the Appendix IX constituents found in the ground water during the Facility Investigation (Task IV).

- a. The Ground-water Protection Standards shall consist of:
 - i) for any constituents listed in Table 1 of 40 CFR Section 264.94, the respective value given in that table (MCL) if the background level of the constituent is below the given in Table 1; or
 - ii) the background level of that constituent in the ground water; or
 - iii) an EPA approved Alternate Concentration Limit (ACL).
- b. Information to support EPA's subsequent selection of Alternate Concentration Limits (ACL's) shall be developed by Sinclair in accordance with EPA guidance. For any proposed ACL's Sinclair shall include a justification based upon the criteria set forth in 40 CFR Section 264.94(b).

2. Other Relevant Protection Standards

Sinclair shall identify all relevant and applicable standards for the protection of human health and the environment (e.g. National Ambient Air Quality Standards, state or federal approved water quality standards, etc.).

TASK VI: LABORATORY AND BENCH-SCALE STUDIES

Sinclair shall conduct laboratory and/or bench scale studies to determine the applicability of a corrective measure technology or technologies to facility conditions. Sinclair shall analyze the technologies based on literature review, vendor contracts, and past experience to determine the testing requirements.

Sinclair shall develop a testing plan identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, Sinclair shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

Sinclair shall prepare a report summarizing the testing program and its results, both positive and negative.

TASK VII: REPORTS

A. Progress Reports

Sinclair shall at a minimum provide the EPA with signed, monthly progress reports containing:

1. A description and estimate of the percentage of the RFI completed;
2. Summaries of all findings;
3. Summaries of all changes made in the RFI during the reporting period;
4. Summaries of all contacts with representative of the local community, public interest groups or state government during the reporting period;
5. Summaries of all problems or potential problems encountered during the reporting period.
6. Actions being taken to rectify problems;
7. Changes in personnel during the reporting period;
8. Projected work for the next reporting period; and
9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

B. RCRA Facility Investigation Reports

Sinclair shall prepare and submit to EPA the RFI reports listed below:

<u>Facility Submission</u>	<u>Due Date</u>
1. RFI Workplan (Task III) and Task I and II Reports	Within 60 days of the effective date of this Order
2. Draft RFI Report (Tasks IV and V)	Within 180 days of receiving EPA approval of the RFI Workplan

- | | | |
|----|-------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 3. | Final RFI Report
(Tasks IV and V) | Within 30 days of receiving
EPA comments on the Draft
RFI Report |
| 4. | Laboratory and Bench Scale
Studies (Task VI) | Within 180 days of receiving
EPA approval of the
Laboratory and Bench Studies
Proposal |
| 5. | Progress Reports on Tasks I
through IV | Monthly |

ATTACHMENT III

SCOPE OF WORK FOR A CORRECTIVE MEASURE STUDY (CMS) AT LITTLE AMERICA REFINING COMPANY, INC. (LARCO) EVANSVILLE, WYOMING

PURPOSE

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken at Sinclair's facility under the requirements outlined in Attachment IV. Sinclair will furnish the personnel, materials, and services necessary to prepare the Corrective Measure Study, except as otherwise specified.

SCOPE

The Corrective Measure Study consists of four tasks:

Task VIII: Identification and Development of the Corrective Measure Alternative or Alternatives

- A. Description of the Current Situation
- B. Establishment of Corrective Action Objectives
- C. Screening of Corrective Measures Technologies
- D. Identification of the Corrective Measure Alternative or Alternatives

Task IX: Evaluation of the Corrective Measure Alternative or Alternatives

- A. Technical/Environmental/Human Health/Institutional
- B. Cost Estimate

Task X: Justification and Recommendation of the Corrective Measure or Measures

- A. Technical
- B. Environmental
- C. Human Health

Task XI: Reports

- A. Progress Reports
- B. Corrective Measure Study Reports

TASK VIII: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

Based on the results of the RCRA Facility Investigation (RFI) and consideration of the identified Preliminary Corrective Measure Technologies (Task II), Sinclair shall identify, screen and develop the alternative or alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

Sinclair shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation Report. Sinclair shall provide an update to information presented in Task I of the RFI to the Agency regarding previous response activities and any interim measures which have or are being implemented at the facility. Sinclair shall also make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

Sinclair, in conjunction with EPA, shall establish site-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RCRA Facility Investigation, EPA guidance, and the requirements of any applicable federal statutes. At a minimum, all corrective actions concerning ground water releases from regulated units must be consistent with, and as stringent as, those required under 40 CFR Section 264.100.

C. Screening of Corrective Measure Technologies

Sinclair shall review the results of the RCRA Facility Investigation and reassess the technologies specified in Task II and to identify additional technologies which are applicable at the facility. Sinclair shall screen the preliminary corrective measure technologies identified in Task II of the RCRA Facility investigation and any supplemental technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions.

The screening step may also eliminate technologies based on inherent technology limitations.

Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

- D. Identification of the Corrective Measure Alternative or Alternatives

Sinclair shall develop the Corrective Measure Alternative or Alternatives based on the corrective action objectives and analysis of Preliminary Corrective Measure Technologies, as presented in Task II of the RCRA Facility investigation and as supplemented following the preparation of the RFI Report. Sinclair shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a

workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. Sinclair shall document the reasons for excluding technologies, identified in Task II, as supplemented in the development of the alternative or alternatives.

TASK IX: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE OR ALTERNATIVES

Sinclair shall describe each corrective measure alternative that passes through the Initial Screening in Task VIII and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. Sinclair shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

Sinclair shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. Sinclair shall evaluate each alternative in the four following areas:

1. Technical

Sinclair shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

a. Sinclair shall evaluate performance based on the effectiveness and useful life of the corrective measure:

- i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

- ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.
- b. Sinclair shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:
 - i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and
 - ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. Sinclair should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.
- c. Sinclair shall describe the implementation of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:
 - i) Constructability is determined by conditions both internal and external to the facility conditions and include such items as location

of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). Sinclair shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. Sinclair shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental

Sinclair shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health

Sinclair shall assess each alternative in terms of the extent of which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to

contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. Institutional

Sinclair shall assess relevant institutional needs for each alternative. Specifically, the effects of federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. Cost Estimate

Sinclair shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (non-construction and overhead) costs.

a. Direct capital costs include:

- i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure.
- ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;
- iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and
- iv) Buildings and services costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

b. Indirect capital costs include:

- i) Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

- ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;
 - iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and
 - iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.
2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. Sinclair shall consider the following operation and maintenance cost components:
- a. Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for postconstruction operations;
 - b. Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;
 - c. Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;
 - d. Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;
 - e. Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;
 - f. Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;
 - g. Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

- h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and
- i. Other costs: Items that do not fit any of the above categories.

TASK X: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

Sinclair shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. EPA will select the corrective measure alternative or alternatives to be implemented based on the results of Tasks IX and X. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

- 1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;
- 2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will be given preference;
- 3. Implementability - corrective measure or measures which can be constructed and operating to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and
- 4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

TASK XI: REPORTS

A. Progress Reports

Sinclair shall at a minimum provide the EPA with signed, monthly progress reports containing:

1. A description and estimate of the percentage of the CMS completed;
2. Summaries of all findings;
3. Summaries of all changes made in the CMS during the reporting period;
4. Summaries of all contacts with representative of the local community, public interest groups or State government during the reporting period;
5. Summaries of all problems or potential problems encountered during the reporting period;
6. Actions being taken to rectify problems;
7. Changes in personnel during reporting period;
8. Projected work for the next reporting period; and
9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

B. Corrective Measures Study Reports

Sinclair shall prepare and submit to EPA, CMS reports as described below:

Facility Submission

Due Date

- | | |
|------------------------------------------------|------------------------------------------------------------------------|
| 1. CMS Workplans
(Tasks VIII, IX, and X) | Within 30 days of submission of
the draft RFI Report |
| 2. Draft CMS Report
(Tasks VIII, IX, and X) | Within 90 days of receiving EPA
approval of the CMS Workplan |
| 3. Final CMS Report
(Tasks VIII, IX, and X) | Within 30 days of receiving EPA
comments on the Draft CMS
Report |
| 4. Progress Reports
(Tasks VIII, IX, and X) | Monthly |

ATTACHMENT IV

SCOPE OF WORK FOR THE CORRECTIVE MEASURE IMPLEMENTATION

AT
LITTLE AMERICA REFINING COMPANY, INC. (LARCO)
EVANSVILLE, WYOMING

PURPOSE

The purpose of this Corrective Measure Implementation (CMI) program is to design, construct, operate, maintain, and monitor the performance of the corrective measure or measures selected to protect human health and the environment. Sinclair will furnish all personnel, materials, and services necessary for the implementation of the corrective measure or measures. SCOPE
The Corrective Measure Implementation program consists of four tasks:

- TASK XII: Corrective Measure Implementation Program Plan
- TASK XIII: Corrective Measure Design
- TASK XIV: Corrective Measure Construction
- TASK XV: Reports

TASK XII: CORRECTIVE MEASURE IMPLEMENTATION PROGRAM PLAN

Sinclair shall prepare a Corrective Measure Implementation Program Plan. This program will include the development and implementation of several plans, which require concurrent preparation. It may be necessary to revise plans as the work is performed to focus efforts on a particular problem. The program includes a Program Management Plan and a Community Relations Plan.

TASK XIII: CORRECTIVE MEASURE DESIGN

Sinclair shall prepare final construction plans and specifications to implement the corrective measure(s) at the facility as defined in the Corrective Measure Study. At a minimum, the following should be specified:

- A. Design Plans and Specifications
- B. Operation and Maintenance Plan
- C. Cost Estimate
- D. Project Schedule
- E. Construction Quality Assurance Objectives
- F. Health and Safety Plan
- G. Design Phases

TASK XIV: CORRECTIVE MEASURE CONSTRUCTION

Following EPA approval of the final design, Sinclair shall develop and implement a construction quality assurance (CQA) program to ensure with a reasonable degree of certainty, that a completed corrective measure(s) meets or exceeds all design criteria, plans, and specifications. The CQA plan is a facility-specific document which must be submitted to the Agency for approval prior to the start of construction. At a minimum, the CQA plan should include the elements, which are summarized below. Upon EPA approval of the CQA plan, Sinclair shall construct and implement the corrective measures in accordance with the approved design, schedule, and the CQA plan. Sinclair shall also implement the elements of the approved Operation and Maintenance plan.

TASK XV: REPORTS

Sinclair shall prepare plans, specifications, and reports as set forth in Tasks XII through Task XV to document the design, construction, operation, maintenance, and monitoring of the corrective measure. The documentation shall include, but not be limited to progress, draft, and final reports.